

AD-A188 723

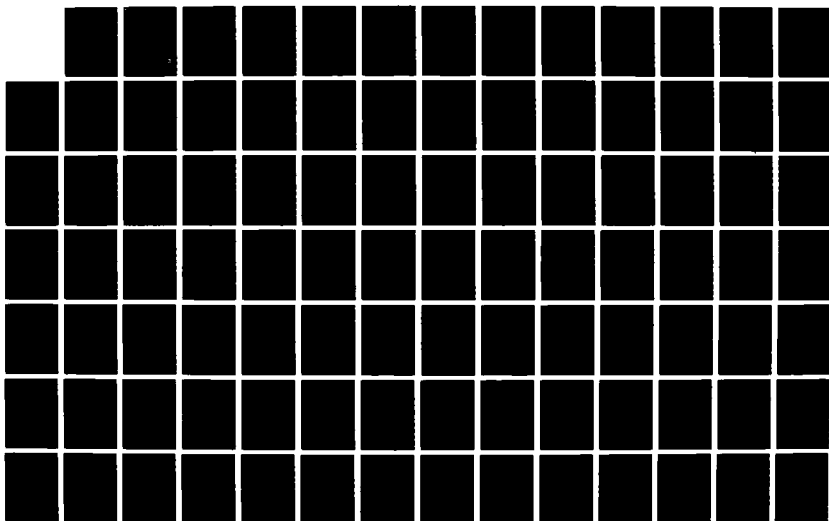
REPORT OF SAFETY SURVEY: HUMAN INTEGRATION OF APPROACH
CHARTS(U) MIDWEST SYSTEMS RESEARCH INC DAYTON OH
W J COX ET AL. MAY 87 DOT/FAA/PH-87/15 F33615-85-C-3623

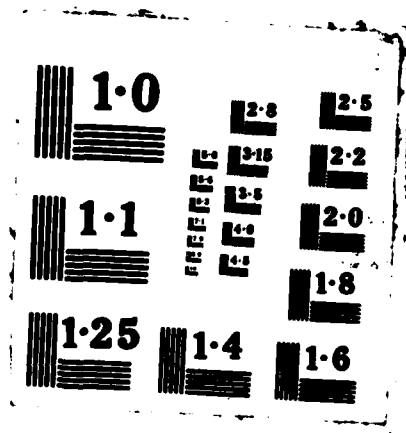
1/3

UNCLASSIFIED

F/G 1/2

NL





DOT/FAA/PM-87/15

Program Engineering
and Maintenance Service
Washington, D.C. 20591

Report of Safety Survey: Human Integration of Approach Charts

AD-A188 723

William J. Cox and C.W. "Bill" Connor

Aviation Systems Concept, Inc.
Annandale, Virginia 22003

May 1987

Final Report

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

This document is available to the public
through the National Technical Information
Service, Springfield, Virginia 22161

DTIC
ELECTE
NOV 23 1987
S E D



U.S. Department of Transportation
Federal Aviation Administration

87

20

NOTICE

This document is disseminated under the sponsorship of the Department of the Air Force and the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

1. Report No. DOT/FAA/PM-87/15		2. Government Accession No. AD A188 723		3. Recipient's Catalog No.	
4. Title and Subtitle Report of Safety Survey: Human Integration of Approach Charts				5. Report Date May 1987	
				6. Performing Organization Code	
7. Author(s) William J. Cox and C.W. "Bill" Connor				8. Performing Organization Report No.	
9. Performing Organization Name and Address Aviation Systems Concepts, Inc. 7011 Evergreen Court Annandale, VA 22003, under contract to: Midwest Systems Research, Inc. 1521 Edna Street Dayton, Ohio 45433				10. Work Unit No. (TRIS)	
				11. Contract or Grant No. F33615-85-C3623	
12. Sponsoring Agency Name and Address Department of the Air Force Air Force Wright Aeronautical Laboratories Flight Dynamics Laboratories AFWL/FIGR Wright Patterson, AFB, OH 45433				13. Type of Report and Period Covered Final Report	
				14. Sponsoring Agency Code USAF: AFWL/FIGR FAA: APM-430/450	
15. Supplementary Notes (Item 12 continued) Federal Aviation Administration, Program Engineering and Maintenance Service Cockpit Technology and Rotocraft Program Offices Washington, DC 20591					
16. Abstract This report provides results of a safety survey conducted among pilots associated with U.S. military (USAF) and civil flight operations. The objective of the survey was to determine the scope of a previously identified safety issue: The need to establish formal human performance criteria for the development and evaluation of instrument approach procedures and charts. A total of 1,037 (from 6,000 distributed) survey forms were completed by pilots and returned for a review of the answers and volunteered comments to thirty survey questions. These questions related to the following terminal instrument flight procedures and charting topics: Information Requirements; Terrain and Obstruction; Runway Information Requirements; Arrival and Departure Navigation Procedures Requirements; Information Location, Symbolology, and Packaging. The study provides six recommendations which address the need to: 1) structure approach plate chart design to provide information in an order consistent with the operational needs of the pilot, 2) establish a system to provide the status of issues requiring consideration and track progress of developments relating to the issues, 3) make use of technical committees to provide a structure within which interested parties can participate and make contributions to the improvement of approach charting, 4) implement a flight simulator activity to evaluate candidate approach charting features and the evaluation of their use in electronic displays, 5) seek improved integration and standardization of all terminal area flight procedure charting, and 6) develop candidate options for the improvement of the utility of the physical documents.					
17. Key Words Human Factors Human Performance Approach Procedures Approach Chart			18. Distribution Statement This document is available to the U.S. public through the National Technical Information Service, Springfield, VA 22161		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 195	
				22. Price	

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. INTRODUCTION	1
2. IDENTIFICATION OF THE PROBLEM	1
3. DETERMINING THE SCOPE OF THE PROBLEM	3
4. STATISTICAL TREATMENT OF SURVEY RESULTS	6
5. SUMMARY OF SURVEY RESULTS	6
6. CONCLUSIONS	10
7. RECOMMENDATIONS	11
APPENDIX A SAFETY SURVEY: TERMINAL INSTRUMENT APPROACH PROCEDURES AND APPROACH CHARTS	A-1
APPENDIX B LETTER REGARDING POTENTIAL HAZARD CAUSED BY NON-STANDARD GRAPHIC DEPICTION	B-1
APPENDIX C STATISTICAL ANALYSIS OF SURVEY QUESTIONS	C-1
APPENDIX D SURVEY COMMENTS, SECTION A: INFORMATION REQUIREMENTS	D-1
APPENDIX E SURVEY COMMENTS, SECTION B: TERRAIN AND OBSTRUCTION	E-1
APPENDIX F SURVEY COMMENTS, SECTION C: RUNWAY INFORMATION REQUIREMENTS	F-1
APPENDIX G SURVEY COMMENTS, SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENT	G-1
APPENDIX H SURVEY COMMENTS, SECTION E: INFORMATION LOCATION, SYMBOLGY, AND PACKAGING	H-1
APPENDIX I SURVEY COMMENTS, GENERAL	I-1
APPENDIX J ABBREVIATIONS	J-1

LIST OF TABLES

TABLE 1	MENTAL WORKLOAD RATINGS	13
---------	-------------------------	----

EXECUTIVE SUMMARY

Literature developed during the past several years contains numerous references regarding the need to: 1) improve the efficiency of terminal instrument flight procedures and 2) improve the utility of related documentation. The implications identified in these references indicate these improvements could be obtained through enhanced human integration of not only the flight procedures but also the instrument approach charting used within the National Airspace System.

The National Transportation Safety Board has recognized this need and has issued recommendations (A-82-91 and A-82-92) regarding the establishment of human performance criteria for use in the development and evaluation of instrument approach procedure and approach charts.

The U.S. Air Force, in cooperation with the Federal Aviation Administration has issued a contract for a safety survey to gather specific data, user information and comments regarding the needs for improved human integration of terminal approach procedures and approach charts.

The survey, conducted among pilots of military (USAF) and civil aviation operations, concentrated on topics such as: Information Requirements; Terrain and Obstruction; Runway Information Requirements; Arrival and Departure Navigation Procedures Requirement; and, Information Location, Symbolology, and Packaging.

Of the 6,000 survey forms distributed, 1,037 were completed, returned and analyzed to determine the scope of reported needs for improvement in the above identified topics. In addition to answering thirty survey questions, responding pilots volunteered 1,194 comments relating to various questions and topics identified in the survey.

From the responses to the questions it can be concluded that many of the respondents are concerned regarding a potential deficiency which could affect air safety and reliability of terminal area flight operations. The respondents have indicated the deficiency is created primarily by an excessive amount of time required to search, sort and select needed information from the appropriate flight charts and related documentation.

Causes of the deficiency can be traced to: inefficient information transfer techniques used in charting terminal procedures, the lack of standardization between the different charting systems used in the cockpit, and the need to change planned flight procedures (approach, missed approach and departure) based on changes in Air Traffic Control clearances.

The study provides six recommendations which address the need to: 1) structure approach plate chart design to provide information in an order consistent with the operational needs of the pilot, 2) establish a system to provide the status of issues requiring consideration and track progress of developments relating to the issues, 3) make use of technical committees to provide a structure within which interested parties can participate and make contributions to the improvement of approach charting, 4) implement a flight simulation activity to evaluate candidate approach charting features and the evaluation of their use in electronic displays, 5) seek improved integration and standardization of all terminal area flight procedure charting, and 6) develop candidate options for the improvement of the utility of the physical documents.

1. INTRODUCTION

The need for improvement in terminal instrument flight procedures and instrument approach charting through improved human integration has been identified as a serious safety concern by various members of the aviation community. The evidence is clear; human performance can be seriously degraded when approach procedures and supporting information systems are developed without the use of adequate human factor criteria. Under these circumstances, the degradation of human performance is especially critical to safe operations since it occurs during the approach and landing phase of flight where the greatest potential for accidents exist.

Note: An FAA funded study, covering a period of thirteen years of operations, indicates that jet transport airplanes suffered 54.5% of that category's total accidents during initial approach, approach and landing--flight maneuvers that involved only 14% of the total operating time.*

Considering the critical nature of any human performance degradation in the landing phase of flight, there is a need to ensure that human performance criteria is applied in the development and charting of instrument approach procedures. Furthermore, evidence also indicates there is a need to apply human performance criteria to the development of IFR and VFR navigation charts, and electronic displays used for aeronautical navigation and execution of instrument approach procedures.

2. IDENTIFICATION OF THE PROBLEM

The difficulty with the use of instrument approach charts--as well as certain type terminal procedures--has been manifested in the literature and safety recommendations made public within the past few years. A review of the following references, provide an identification and preliminary assessment of the basic cause of these difficulties.

Special Air Safety Advisory Group (SASAG)--a group commissioned by the FAA in 1976 to study the air transportation system in the United States and make recommendations about how to improve safety--criticized the charts as being over-complicated, cluttered, hard to read, impractical and stated they do not present all the information needed.

Safety-related recommendation number eleven of the July 2, 1981, "Report of the President's Task Force on Aircraft Crew Complement," stated: "Enroute, terminal area, and approach charts are frequently designed in a way that makes them difficult to use. The design and contents of these charts should be improved."

*Report FAA-RD-73-168, Parks, Donald L., Hyashi, Maxie M., Fries, James R. (Boeing Commercial Airplane Co.), Development of an Independent Altitude Monitor Concept, September 1973, page 12.

In a paper prepared by R.F. Gabriel, PH.D., Douglas Aircraft Company, for delivery to the Air Line Pilot Association's 1977 Symposium on Human Factors Emphasizing Human Performance, Workload, and Communications (Washington, D.C.), the following problems with approach charts were identified:

United Airlines conducted a survey (UAL, 1975). They distributed questionnaires to 4000 of their pilots. Questions were multiple choice, best answer type and involved responding to questions about information that could be found on example approach plates. No time limit or other restriction was involved. Essentially, it was an "open book" test. Over 2600 questionnaires had been returned at the time the study was reported. Some of the questions gave difficulty. For example:

- o 50 percent of the respondents missed a question on the minimum altitude authorized for a procedure turn.
- o 43 percent missed a question concerned with takeoff clearance.
- o 24 percent missed a question involving action to be taken when reaching a given intersection.
- o 23 percent missed a question involving the decision height for an approach during which sequentially flashing lights were inoperative.

Many other questions were missed by a significant number of pilots (8-11%) while almost every question was missed by one or more pilots.

There is no doubt that the approach charts need improvement. These judgements were not made during flight with all the attendant pressures. They were made in a relaxed atmosphere. No one knows how many errors are made in flight. The study certainly is thought-provoking and obviously additional investigation is warranted.

The National Transportation Safety Board (NTSB), in its Safety Recommendations A-82-91 through -93 (issued August 18, 1982), reviewed nine serious accidents, each of which has resulted in recommendations to the FAA to modify specific instrument approach procedures or instrument approach plate information.

In its August 18, 1982 issuance, the NTSB stated:

All of the (nine reviewed) recommendations addressed two basic issues--our belief that insufficient attention is given to human performance criteria in the development of approach procedures and in the process for reviewing the approach procedure depiction on the approach chart--both of which are deficiencies that can lead to confusion and mistakes by the pilot users. Pilots have been criticized for misinterpreting approach charts and approach

procedures, with little consideration given to the operating environment in which the procedures and charts are used and the degree to which these procedures and charts themselves may be conducive to error. The Safety Board believes that it is the obligation of the developers of approach procedures and charts to incorporate human factor considerations into their design so that the possibility for pilot confusion, misinterpretation, or errors is eliminated.

The NTSB further states:

In the public hearing convened by the Safety Board regarding the January 21, 1981, accident, testimony by spokesmen for the FAA revealed that there are no specific human performance checklists or guidelines for the procedures specialist or flight inspection pilot who flies and evaluates the approach procedure. The Safety Board believes that factors, such as user/pilot intelligibility, workload, attention demands, human memory limitations, and other sensory, perceptual, and cognitive restrictions, must be considered when designing approach procedures...

In commenting on past FAA responses to recommendations relative to this matter the NTSB states:

As a result of past Safety Board recommendations, the FAA has taken action to modify specific procedures on a case-by-case basis; however, an attack on the aggregate problem by alleviating individual approach procedure problems on a post-accident basis is not satisfactory. A better, more efficient method would be to incorporate human factors design considerations into the development, design, and evaluation of all approach procedures and approach charts before accidents occur.

Therefore the NTSB recommended, among other things, that the FAA:

Establish formal human performance criteria for the development and evaluation of instrument approach procedures and instrument approach charts. (A-82-91)

Establish human performance checklists or guidelines for use by procedures specialists and flight inspection pilots when evaluating new approach procedures. (A-82-92)

3. DETERMINING THE SCOPE OF THE PROBLEM

A joint U.S. Air Force (USAF) and Federal Aviation Administration (FAA) study activity has been implemented to determine how human performance criteria can be applied to improve the design of instrument procedures, aeronautical charts and publication formats for use in the cockpit. As a part of the study, an initial task has been undertaken to collect and document information which indicates the current methods, techniques and criteria applied to existing procedures and charting used in the National Airspace System. The investigating organization was Aviation Systems Concepts, Inc., Annandale, VA, a sub-contractor to Midwest Systems Research, Inc., Dayton, OH, under contract to the USAF Flight Dynamics Laboratories, Wright-Patterson Air Force Base.

Recognizing that there are many facets and factors which influence the design, distribution and use of approach charts, an initial effort was undertaken to determine the scope of the difficulties with currently used approach procedures and charting systems. In the United States these charting systems include the Government publications produced by the Department of Defense (DoD), and the National Oceanographic and Atmospheric Administration (NOAA) and the commercial publications produced by the major supplier of such publications; Jeppesen, Sanderson, Inc. (hereafter referred to as Jeppesen).

A safety survey (see Appendix A) was developed to gather specific data, end-user information and comments regarding these terminal approach procedures and approach charts. This thirty-question survey also included requests for aviation experience and related information on responding pilots to enable the development of statistical data according to selected categories of flying experience, operational background, etc. Information regarding the identification of the respondent was also solicited, as optional information, to provide the capability for the surveyor to call-back for additional comments, should the need arise. Survey questions were divided among the following five sections and topics:

<u>Section</u>	<u>Topic</u>
A	Information Requirements
B	Terrain and Obstruction
C	Runway Information Requirements
D	Arrival and Departure Navigation Procedures Requirements
E	Information Location, Symbology, and Packaging

The questions were sequentially numbered and included, as a prefix, the alphabetical identifier of the related section. (e.g., A07, B08, E29, etc.)

The respondents were additionally requested to rate, separately, the level (on a scale of 1 to 10, with 10 being the greatest level) of mental workload difficulty associated with processing the depicted information. The respondents were also requested to select the three most significant questions in the survey and rank them by level of importance (i.e., "one", "two" or "three" with "one" being the most important).

Six thousand copies of the survey were distributed through participating military (USAF) and civil aviation organizations. These included:

- Air Line Pilots Association (ALPA)
- Aircraft Owners and Pilots Association (AOPA)
- Allied Pilots Association (APA)
- Embry-Riddle University (Flight Department Instructors)
- Helicopter Association International (HAI)
- National Business Aircraft Association (NBAA)
- Society of Experimental Test Pilots
- Southwest Airlines Pilot Association (SAPA)
- USAF Military Airlift Command (MAC)
- USAF Instrument Flight Center (IFC)

The total number of completed survey forms returned was 1037, representing 17.2 percent of the number distributed.

The survey-generated information, including data and comments, was entered into a computer data base. Analysis of the survey results was performed using a relational data base software package, RBase System V. This package provided the statistical tools necessary for extensive data manipulation and analysis required in the study.

The sum of the hours of flight experience, indicated by 1014 survey forms providing flight hour information, was 8,132,579 hours. The individual pilot minimum and maximum flight hours, were 200 and 28,800, respectively. The average flight hour experience of the responding pilots was 8,020 with a standard deviation of 5,272. A total of 646 pilots (62% of the respondents) provided a telephone number and/or a mailing address to allow a researcher call-back to the respondent for additional comments. The completed survey forms were assigned serial numbers to provide correlation of the recorded data with the respondents call-back identification.

For analysis purposes the returns were divided into the following generic groups:

<u>Group Identification</u>	<u>Number in Group</u>
Military (USAF/MAC & IFC) Airplane Operations	212
Civil & Military (USAF MAC) Helicopter Operations	70
Civil Air Carrier & Gen. Av./Corporate Airplane Operations	755

Since the approach procedures and charting needs of helicopter operations tend to be significantly different from airplanes, survey returns from all helicopter pilots, military (MAC) and civil, were separated from other returns to provide more homogeneous groups with respect to flight operations. This provided a more valid assessment of the separate helicopter and airplane operational needs.

These groups were further partitioned into sub-groups according to the type of approach chart(s) identified in the survey form, i.e., Jeppesen, Jeppesen and U.S. Government, and U.S. Government. The rationale for this sub-grouping is that it provides a degree of separation of U.S. Government chart use from that provided by charts supplied by the major commercial developer, Jeppesen; although, within all groups both types of charts, Jeppesen and U.S. Government, are common to some elements of the group.

Note: Since the NOAA and DoD approach charts have a high degree of similarity in format, layout, symbology, and packaging, etc., and to keep the number of variables within a reasonable range of values, these two types of U.S. Government charts were combined for analysis purposes. Both are referenced in this report as "Government" charts.

The established survey distribution philosophy involved the need to distribute a survey to each member of selected aviation organizations, selecting other organizations to provide a random distribution. Working with the National Business Aircraft Association (NBAA), the researchers provided

3000 survey forms for distribution through its membership mailing system. This provided a survey form for each corporate member. In a similar fashion, with the cooperation of the Southwest Airlines Pilot Association, 540 survey forms were provided, one for each pilot member of that organization. The remaining 2460 survey forms were distributed by the recipient organizations in a random fashion.

The solicitation of survey information through the NBAA provided a survey form in the hands of pilots who operate into virtually every airport within the U.S., as well as numerous foreign airports. It also provided the opportunity for feedback from pilots operating a wide range of aircraft types, air-borne navigation and flight display equipment.

4. STATISTICAL TREATMENT OF SURVEY RESULTS

Tabulation of the percentage of "yes" and "no" answers to each survey question has been provided on individual statistical formats contained in Appendix C. These formats provide a computation for not only the separate survey groups but also a computation by type(s) of approach chart used by each sub-group. In addition each question is ranked according to the tally of entries for that question with respect to its ranked level of importance in Question 30. To aid in the ranking of the questions identified by the respondents, a factor of three was applied to the number representing the tally for each question identified as the most important. A factor of two was used in the ranking of those questions identified as the second most important question.

Calculations have also been made to provide averages of the ratings of perceived mental workload provided by the respondents in each section of the survey. These have been developed (see Table 1.) using two pilot groups, airplane pilots (both civil and military) and helicopter pilots (both civil and military). These two groups are also separated into sub-groups, depending upon the type of approach chart(s) design (Jeppesen, Jeppesen and Government, or Government) reported in the survey. No attempts have yet been made to collect actual mental or cognitive workload measures during actual or simulated flight approaches.

5. SUMMARY OF SURVEY RESULTS

One surprising aspect of the survey results is that nearly two-thirds of the respondents provided telephone and/or mailing address information to permit a call-back to clarify or supplement information provided. This, in addition to the the number of comments offering volunteer assistance on a study of approach charting and procedures matters is a demonstration of the interest and concern many pilots appear to have regarding the design of approach procedures, approach charting and information depiction. Furthermore, the number and range of issues presented, and the large number of comments (1,194), indicate that serious consideration has been applied in the development of responses to the survey questions.

One of the general comments received provides an illustration of the interest with which some pilots view the need for improvement in the charting and procedures:

I am pleased to have the opportunity to comment and hope my input will do some good. I have long considered this subject one of the most confusing and demanding. I've learned to live with the problem and learned to sift and glean the information I need through work

experience. Nevertheless, I still make mistakes and have grey areas regarding this information. (i.e., how long is the runway, again?) Hopefully all this will be simplified and improved in the future, in time for my retirement.

Another stated:

Generally good questions - with increased workload in cockpit and increased terminal traffic it is necessary to package standardized & essential information only. There's no time for nice to know/confusing/conflicting information at 110-175 KTS, LMC with reported traffic. Thank you for this attempt to standardize presentations and substance of approach material.

However, not all respondents were in agreement about the suitability of the questions. One provided this comment:

Don't use words like "intuitively" in a pilot questionnaire.

Perhaps this serves to remind us that much progress is needed in the area of improved communication and standardization of even the language and terminology used to coordinate views and information regarding this important, but critical subject--not to mention the need to standardize the charted information. Other respondents talked about the need for intuitive chart depictions while others expressed a feeling of being "tricked" by the chartmakers. One pilot has taken the trouble to describe in a letter (Appendix B) his experience in using two types of charts employing non-standardized types of symbology and approach profile depictions. He stated, "the eye-mind combination is marvelous, but can be misled by conflicting visual information." He added, "I would like to suggest that this deficiency be corrected ASAP, and further that the U.S. Government and Jeppesen chartmakers put their collective heads together, take the best of both, and STANDARDIZE."

The questions dealing with standardization, (i.e., C14, E24, and E25) were ranked high on the list of the three most significant questions; however, the question most often identified as the most important question was D18 regarding the workloads generated by the procedures for missed approach and holding. For example, the following comment is typical of the general view expressed by several respondents:

Published missed approach procedures should be identical (if possible) to those used by ATC. Rarely, if at all, does a pilot fly a published missed approach, which causes an increase in workload by requiring a briefing for a procedure that most likely will not be used.

Standard instrument departure procedures and charts (SIDs) also provoked considerable comment, such as:

It would help to have Military "SID's" in the book like they are for overseas...and in the Jeppesen's (Military SID's are individually issued by Base Ops.) Looking at the question some more, SID's do seem to create more confusion overall; they're used much less, depiction and interpretation is often not very intuitive, and there seems to be a lack of standardized format.

Other comments provide more opinionated points of view regarding SIDs:

The SID system is no end of trouble. They are too complex and almost never flown as depicted. The SID system requires all attention inside the cockpit on departure--thus reducing or eliminating the pilot(s) ability to exercise "see and avoid" (procedures).

We find many SID's totally unacceptable for the safety of flight. In a jet aircraft the pilot is flying and the co-pilot has his head down switching nav. frequencies and radials--no one has time to look for VFR traffic. This is very dangerous. If you have any kind of emergency it is very unlikely that the crew could fly the airplane, handle the problem and fly the SID profile. Denver Stapleton has the best--runway heading to 10,000 for on course vectors--and the crew can watch for traffic. Because approach charts have too much information, we spend too much time sorting it out trying to find what is needed. The Loupe Four Departure at San Jose, CA. is a good example of one of the worst. It is not simple. Both crew members are busy under a normal situation just flying the procedure and no one has time to look for traffic in a very congested area. We constantly run into this problem over and over again, day after day, trying to interpret complicated charts, compromising safety because no one has time to watch where we are going.

Depending upon the type of chart service used, the need to consider the packaging issues also received a high ranking and, if the number of comments generated with this question is any measure, it appears to be the most provocative. The majority of these comments address the difficulty in using the approach charts that are bound in thick volumes. There are several comments identifying the difficulty in finding the needed chart when the indexing of charts is done by state vs. by city or airport. For example:

Cincinnati International Airport is in Kentucky, not Ohio. This can be confusing if you are looking for a plate in a hurry.

Some complained that the blue printing on the DoD charts made reading difficult, especially at night, and others complained about the time-consuming task required to update the loose-leaf type of packaging.

Although not necessarily indicating a need for serious concern, based on the "yes"/"no" count, question A01 dealing with the sufficiency of the information display, nonetheless, ranked moderately high on the perceived level of importance. There were numerous comments identifying information that was needed on the charts. Examples:

The ATIS, clearance frequencies etc., needs to be on all appropriate charts. (e.g., ATIS needs to be on all arrival charts, the clearance freq. needs to be on all departure & approach charts. Field elevation needs to be on all dept. charts because a loss of engine on take off requires a level-off and clean-up altitude AGL.) Having field elevation on the departure chart in front of the pilot would be very helpful for a quick reference. Appropriate MDA's and DH's are sometimes difficult to ascertain when certain approach or runway equipment is inoperative. Many lost communications procedures on departure charts are very confusing.

Approach chart information is badly needed: 1) Minimum vectoring altitudes corresponding to ATC requirements, with accompanying bearing & distance information from airport; 2) Bearing & range information for terrain & obstruction hazards; 3) RNAV information for airport location; 4) Additional tower & ground frequencies where more than one are in use (e.g., Atlanta Hartsfield); and, 5) Lost communication procedures to be used during radar vectoring in LMC. Many approaches are exceedingly complicated and confusing, requiring the use of multiple radio receivers and/or frequencies.

Another, expressing a concern similar to others that too much information is found on the charts, stated:

I feel that there is too much information on most approach plates. They are generally too cluttered and certainly, therefore, hard to read, especially when the print is this small. I'm almost 53 years old & could use BIGGER PRINT, especially at night. They need to somehow put on the plates what you need to make a safe approach to landing or go around, with what you need to do this all on one sheet. I don't need to be looking for an altitude I can descend to or a freq. I need to contact someone on a missed approach. Terrain-wise, I think if it could kill me I need to know about it topographically. Places like Geneva, Mexico City, San Diego, Vegas, Guatemala City and many more, you need to have a better idea than having to switch between the area chart and the arrival/departure plate trying to see if you can turn here or not, especially on the 1st time into an airport.

Another set of topics which ranked only moderately high on the perceived level of importance, those relating to terrain and obstruction, also evoked a number of voluntary comments such as:

Need some more specific info. on location/type of terrain hazard (e.g., hills, mountains, towers, etc.) Topography within 25 miles as background for approach procedure would be ideal.

Terrain could be better visualized especially in the area of a letdown fix. You are sometimes asked to go below a specified altitude but the pilot has no way, by using the instrument chart, to tell what, if any, obstruction is causing altitude problems. Only controllers have depicted MVA's available to them, and MVA's may be lower than chart altitudes. Don't trust human judgement.

However, not all of the comments that address the need for improved depiction of obstacle clearance information relates to human performance. Some are related to aircraft performance:

I believe that standardization of climb requirement in % gradient and display of that information for each runway (including intersection T/O's) and go-arounds is important! And for SID's where climb performance is relevant, much of this data is unavailable to pilots... (i.e., look at the airport obstruction charts which are for "engineering draft table" use). We need the end result data. Some close in obstacles less than 2.5% gradient are not presented to us even though our authorized climb gradients may be as low as 1.6% net, i.e., if we are not aware of those obstacles, we may not apply an obstacle limit to our T/O.

Rate of climb information displayed on SID's and MAP's does not translate to performance data charts of DoD aircraft. There are several problems with this and related obstacle clearance information to the extent that in many instances one cannot determine aircraft capabilities. This area requires major revision!

Make all missed approach instructions simple and to the point. All SID's should show the controlling obstacle for climb outs. Some SID's i.e., Navy, do not show obstacles. When flying the C-5 our max gross weights are dependent on obstacle clearance. If no obstacles are depicted we must use higher climb gradients which reduces our max gross weight for take off. Other DoD SIDs list obstacles which really are no factor for anyone! A total review of obstacles should be done with inputs from all branches of service and civilian air transport aircraft (operators) involved!

A number of comments provide suggestions regarding a general approach that could be implemented to improve the approach charting and procedures factors. Examples of these suggestions are included in the two following comments:

The amount and type of information currently displayed on approach plates is good. I think there needs to be more study, however, into how the information can be better presented, i.e., standard symbology and phrases and layouts, removal of extraneous lines and arrows, etc. Find out what information is most important, most often used and then display it in such a manner that the pilot can glean what's needed quickly. I'm sure that's been done in the past, but it needs another look from an information processing/perception stand point.

Working groups should be formed to simplify complex "letdown" plate procedures, missed approach instructions, etc., at airports that have high density aircraft traffic flow (e.g., LAX, Chicago ORD/MDW, etc.) pilot workload to interpret and comply with multiple "stair step" let-downs and approaches results in more "heads in the cockpit" time rather than clearing the area for light aircraft VFR traffic. (example: LAX runway 25 profile descent.) Any changes to consolidate, simplify, standardize and enlarge printed matter on Jeppesen charts will improve pilot efficiency and on VFR ... help him keep his head out of the cockpit to clear for unknown threats.

The respondents' comments have provided a large list of perceived issues. Although some are redundant or similar in nature, all have been retained and included in this report. These 1,194 comments are referenced in Appendices C through H, divided according to the survey section to which they relate. Appendix I contains a number of general (GEN) comments. To aid in the incorporation of these comments into computer memory, they have been prepared in a type form suitable for optical scanning.

6. CONCLUSIONS

Participants in the survey have indicated that a potential air safety deficiency has been created by the excessive head-in-the-cockpit time required to search, sort and select needed information. The scope of the identified deficiency appears to be quite broad, based on the comments provided and the number of issues documented by the survey respondents.

Inefficient information transfer techniques used in charting approach, missed approach and instrument departure procedures and associated information are causing delays the cockpit flight implementation processes and excessive head-in-the cockpit time that could have a potential adverse impact on air safety reliability. Little evidence exists to indicate that human performance criteria has been aggressively exploited to provide the type of information transfer--from charted or visual media to the pilot--being requested by the respondents to this survey.

The recommendations by the participants indicate a requirement for a numerous changes to the existing charting systems being used in the National Airspace System today. This may require new innovative design structures for approach plate/charts.

Based on the documented identification of the problem and the scope of the issues perceived and identified by the respondents to this survey, there is a need to improve procedures and charting techniques associated with instrument approach, missed-approach, and departure flight operations. High on the list of priorities should be the need to improve the standardization of charting formats, symbology and information depiction. The need to standardize will, in all probability, become even more pressing with the expanded use of electronic displays in the new "glass" cockpits, many of which are presently displaying forms of graphic representations of approach charts and flight procedural information.

This effort should be done with the participation of segments of the civil and military pilot population and should include various evaluation techniques, including flight simulation experiments, to validate alternative solutions to the issues relating to the human integration of approach charts and procedures

7. RECOMMENDATIONS

Recommendation 1.

Develop approach plate/charting designs which incorporate an OPERATIONAL STRUCTURE, integrating the information with intuitive symbology in a logical flow and pattern that reflects the way pilots utilize information during the flight operational process. These designs should be developed with a high priority being placed on the need for improved ATC/pilot information transfer efficiency. The operational structure of the charting design should STANDARDIZE information by priority, location and symbology and be acceptable for electronic display formats.

Recommendation 2.

Establish a system to provide the status of issues and track progress of developments relating to the issues identified.

Recommendation 3.

Make use of technical committees to provide a structure within which interested parties can contribute through reviews of issues and participation in the development of candidate approach plate/charting recommended solutions.

Recommendation 4.

Implement a flight simulation program to evaluate procedures and techniques associated with candidate features for approach plate/chart improvements and their use with electronic flight displays installed in the new "glass" cockpits.

Recommendation 5.

Develop a program that has as an objective the improved integration and standardization of domestic civil and military aviation charting for approach, missed-approach and departure flight operations.

Recommendation 6.

Develop candidate options for the physical documents. Provide means to access individual charts yet allow them to be useable in the cockpit during an approach. (They should not be so cumbersome as to fall off of lap or slip out of holders or clips). Additionally, considering the update techniques, provide recommendations to reduce the tedious workload of updating the chart package.

Copy available to DTIC does not
permit fully legible reproduction

Table 1. MENTAL WORKLOAD RATINGS

Airplane Pilots (Civil and Military)

Group Chart Size (a)	Section A			Section B			Section C			Section D			Section E		
	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating
186 J & G	5.41	1.90	5.22	2.01	4.75	1.78	5.52	1.87	5.30	1.71	5.30	1.71	5.30	1.71	5.30
581 J	4.87	2.14	4.71	2.08	4.54	1.95	5.52	2.20	4.78	1.80	4.78	1.80	4.78	1.80	4.78
200 G	5.11	1.94	4.81	2.04	4.52	1.93	5.41	2.05	5.38	1.91	5.38	1.91	5.38	1.91	5.38

Helicopter Pilots (Civil and Military)

Group Chart Size (a)	Section A			Section B			Section C			Section D			Section E		
	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating	Std. Dev	Av. Rating
17 J & G	5.00	1.93	4.21	1.74	4.64	1.72	5.50	2.56	5.69	1.73	5.69	1.73	5.69	1.73	5.69
19 J	5.23	1.83	4.28	1.41	4.72	1.73	5.17	1.54	5.12	1.49	5.12	1.49	5.12	1.49	5.12
34 G	5.03	2.33	4.47	2.06	4.45	1.89	5.33	2.34	4.46	1.84	4.46	1.84	4.46	1.84	4.46

^a J: Jeppesen; G: Government

APPENDIX A

SAFETY SURVEY

TERMINAL INSTRUMENT APPROACH PROCEDURES AND APPROACH CHARTS

Aviation Systems Concepts, Inc., Annandale, Virginia, under contract to Midwest Systems Research, Inc., Dayton, Ohio, has undertaken a study related to pilot human factors research for crew systems integration. This activity is in support of USAF Flight Dynamics Lab Contract F33615-85-C-3623. The objective of this study is to determine how human criteria can be applied to improve the design of instrument approach procedures, aeronautical charts and publication formats for use in the cockpit. The results of this study, along with specific recommendations on steps/concepts that can be pursued to improve existing procedures, charts and publications will be reported to the U.S. Air Force (USAF), and the Federal Aviation Administration (FAA) for review.

One of the tasks of this contract involves the use of a survey of current methods, techniques, and criteria applied to existing procedures and charting used in the National Airspace System. This survey form is designed to support this task. Your voluntary assistance is requested in providing end-user information on currently-used terminal approach procedures and approach charts. Your identification is strictly optional, but should you care to provide additional comments regarding this survey, and do not object to a call-back from the surveyor, a place has been provided for your name, address, and telephone number.

OPTIONAL INFORMATION

Name _____
Address _____
City _____ State _____
Zipcode _____ Telephone () _____

AVIATION EXPERIENCE:

TOTAL PILOT TIME:

Civil _____ Military _____

TRAINING: (Check)

Civil () Military () Both ()

CIVIL PILOT CERTIFICATES HELD:

Airplane: ATP () Commercial Pilot ()

Helicopter: ATP () Commercial Pilot ()

MILITARY FLIGHT ACTIVITIES:

Bomber () Helicopter () Tactical () Transport ()

TYPE AIRCRAFT FOR WHICH COMMENTS APPLY:

Civil _____ Military _____

WHICH TYPE OF APPROACH CHARTS DO YOU USE?

Jeppesen () NOAA () DoD () Other ()

Copy of this form to DTIC does not
constitute log file reproduction

Appendix A

Rate Sections A. through E. in order of mental workload difficulty on processing information. Use a 1 to 10 scale with 10 being the greatest level of difficulty. (Identical ratings for separate Sections are acceptable, i.e., Section A, Rating: 6; Section B, Rating: 6; Section C, Rating: 4; Section D, Rating: 8; Section E, Rating: 5).

SECTIONS

Please check appropriate box

A. INFORMATION REQUIREMENTS Rating: ()

	<u>YES</u>	<u>NO</u>
1. Is there sufficient information displayed?	()	()
2. Is the information displayed too cluttered?	()	()
3. Does the information have a logical operational flow?	()	()
4. Is the information difficult to interpret?	()	()
5. Does the information transfer intuitively?	()	()
6. Is there too much time required for sorting, selecting, and interpreting information?	()	()
7. Is there any required information, as presently displayed, difficult to locate? (If "Yes", please list those information items in the Comment section.)	()	()

B. TERRAIN AND OBSTRUCTION Rating: ()

8. Are there too many terrain and obstruction cues?	()	()
9. Are there sufficient terrain and obstruction features displayed?	()	()
10. In the approach plate sector section, should only the highest obstruction be identified and displayed?	()	()
11. Do the existing terrain features displayed on the approach charts enhance human performance?	()	()
12. To aid in position awareness, should the terrain displayed be limited to only the most prominent river, lake or topographical feature?	()	()

C. RUNWAY INFORMATION REQUIREMENTS Rating: ()

13. Should <u>each</u> approach chart have associated runway length and lighting information displayed?	()	()
---------------------------------------------------------------------------------------------------------	-----	-----

Appendix A

YESNO

14. Should all the communication frequencies to be used (i.e., ATIS, APPCH, TWR, GND, CLNC DEL, DEP) be displayed on each approach chart in the same location? () ()
15. ILS Frequencies and Courses are not presently grouped or standardized in information formats. (e.g., ILS DME 12R Freq 109.7 ID CRS 119⁰ NOTE: OFFSET LOC) Should this be standardized? () ()
16. Have you experienced interpretational or information transfer difficulties between approach charts of different publishers? () ()
Jeppesen () NOAA () DoD () Other ()

D. ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS Rating: ()

17. Is there confusion interpreting MDAs or DHs on approach charts? () ()
18. Do the procedures for missed approach and holding generate excessive workloads during the go-around? () ()
19. Are standard instrument arrival and approach chart procedures sufficiently compatible to reduce workload? () ()
20. Do standard instrument departure procedures generate excessive workloads when followed to completion? () ()
21. Have you experienced standard instrument departure cancellations which generated excessive workload? () ()
22. Do the use of the standard instrument departures, as displayed, create confusion? () ()

E. INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING Rating: ()

23. Is the approach chart symbology intuitive? () ()
24. Presently there is a difference in obstacle symbology between the types of publications of approach charts. Should they be standardized? () ()
25. From a human integration standpoint, should approach chart information be standardized and be located by priority? () ()

Copy available to DTIC does not
permit fully legible reproduction

Appendix A

YES

NO

26. Have you experienced difficulty with the way Government approach charts are packaged? (If "Yes", please describe in the Comments section.) () ()
27. Should the Government approach charts be packaged differently? (If "Yes", please list recommendations in the Comments section.) () ()
28. Should approach chart information be organized and structured into standardized formats for use with electronic displays? () ()
29. Have you experienced ATC communication requests that generate conflicts with your interpretation of approach chart procedures? (If "Yes", please list circumstances in the Comments section.) () ()
30. Please select the three most significant questions in this survey and rank them by level of importance. (1) (2) (3)

COMMENTS: Please Type or Print

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Appendix B

Copy available to DTIC does not
permit fully legible reproduction

To: Interested Aviation Agencies

From: John Klay ATP #1687396
HBE Flight Department
18130 Edison Avenue
Chesterfield, MO 63011

Ref: Potential safety hazard caused by non-standard graphic depiction.
Please refer to the enclosed approach procedure charts.

Date: Sept. 10, 1986

Recently, our new chief pilot decided to switch from Jeppesen to U.S. Government navigation and approach charts. After flying for twenty years using only Jeppesen, I would like to point out what I feel is a potential safety hazard and a need for required standardization in the publication of approach charts.

During a recent training flight, I was asked to fly a practice VOR approach to runway 8R at the Spirit of St. Louis airport. It was a night flight to fulfill my recent experience requirement for night landings, and the weather was better than 5000 feet and 5 miles visibility. I've flown out of this airport for almost ten years and this approach several dozen times, however, I try not to memorize approaches and briefly reviewed the approach for important information needed to execute the procedure. After an entry from the depicted holding pattern, I crossed FTZ VOR inbound at 2400 feet, tracked inbound to Kaehn intersection (FTZ 7 DME), and then descended to MDA 1020 feet. Shortly after reaching MDA, my right seat co-captain said, "I don't think you're supposed to be down this low this far out." I looked back to the profile view and saw my mistake. This was a step-down procedure and I wasn't supposed to descend below 1800 feet until inside Halic intersection (FTZ 11 DME).

Had I been flying this approach using the more familiar Jeppesen charts, I'm convinced that I would not have made the same mistake. Their profile depicts the approach as it should be, a step down procedure leveling at 1800 feet until passing Halic. The eye-mind combination is marvelous, but can be misled by conflicting visual information. My eyes saw the 1800 and the continually sloping descend path, but what registered on my brain was, after Kaehn descend to MDA because that's the way it looks.

I do recognize, however, that my relative unfamiliarity with government depiction formats did contribute somewhat to the mistake potential for similar misinterpretations by other pilots that may be inexperienced, nervous because of fuel and weather considerations, or otherwise hurried by a multitude of factors. At a glance, that portion of the chart can be seriously misleading.

Without be laboring this point, this mistake would probably not have caused an accident at SUS, but might well have at some other airport. The profile depiction used by Jeppesen makes it extremely unlikely that someone might misinterpret because you have two visual cues, one graphic and one written.

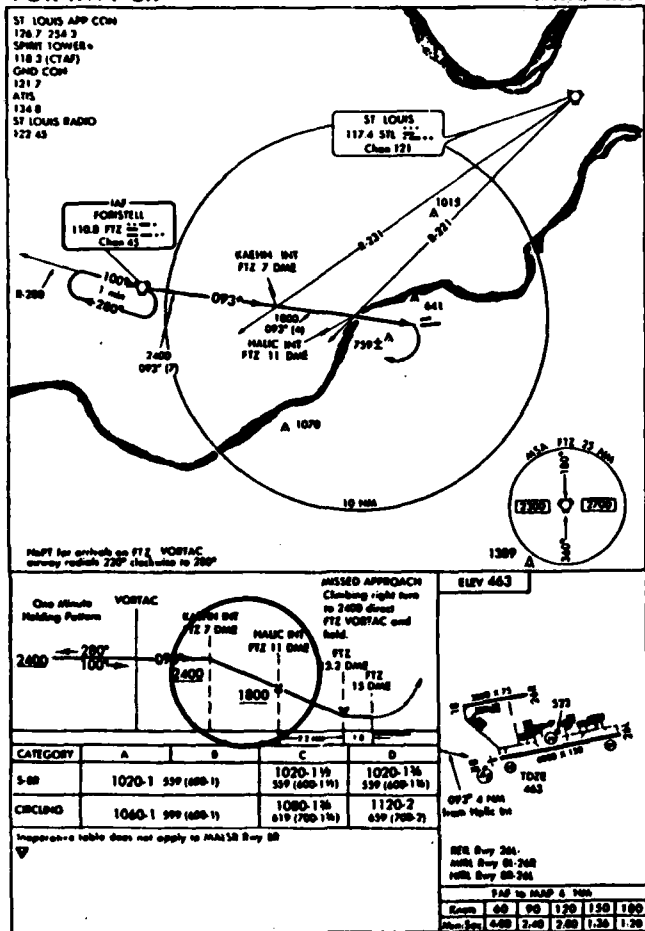
I would like to suggest that this deficiency be corrected ASAP, and further, that the U.S. Government and Jeppesen chartmakers put their collective heads together, take the best of both, and standardize!

B-2

(U.S. GOVERNMENT)

VOR RWY 8R

AL-5400 (FAA) ST LOUIS SPIRIT OF ST. LOUIS (SUS)
ST. LOUIS, MISSOURI



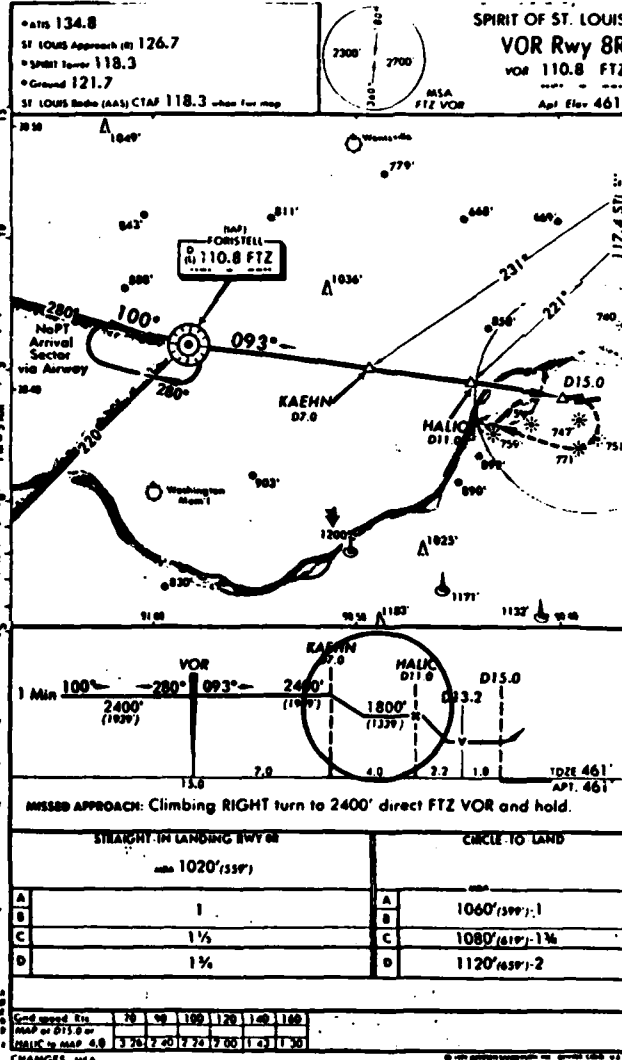
VOR RWY. 8R 28° 48' N - 99° 28' W ST. LOUIS, MISSOURI
ST. LOUIS/SPIRIT OF ST. LOUIS (SUB)

VOR RWY 26L

AL-5400 (FAA) ST. LOUIS/SPIRIT OF ST. LOUIS (SUS)
ST LOUIS, MISSOURI

(JEPPESEN)

SPRINT
SPIRIT OF ST. LOUIS
VOR Rwy 8R
vor 110.8 FTZ
Apt Elev 461'



Appendix C
S T A T I S T I C A L A N A L Y S I S
O F
S U R V E Y Q U E S T I O N S

SECTION A: INFORMATION REQUIREMENTS

QUESTION A01:

Is there sufficient information displayed?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	85.5	14.5	22
U.S. Government	127	90.6	9.4	12
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	94.1	5.9	02
Jeppesen	19	89.5	10.5	09
U.S. Government	34	91.2	8.8	04
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	94.1	5.9	21
Jeppesen	573	92.7	7.3	13
U.S. Government	68	83.8	16.2	06

Appendix C
 STATISTICAL ANALYSIS
 OF
 SURVEY QUESTIONS

SECTION A: INFORMATION REQUIREMENTS

QUESTION A02:

Is the information displayed too cluttered?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
<hr/>				
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	42.2	57.8	13
U.S. Government	126	34.1	65.9	13
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	17.6	82.4	01
Jeppesen	18	38.9	61.1	27
U.S. Government	34	23.5	76.5	08
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	100	50.0	50.0	22
Jeppesen	574	41.6	58.4	09
U.S. Government	68	23.5	76.5	25

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION A: INFORMATION REQUIREMENTS

QUESTION A03:

Does the information have a logical operational flow?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	81.9	18.1	25
U.S. Government	126	81.0	19.0	21
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	76.5	23.5	06
Jeppesen	19	89.5	10.5	22
U.S. Government	33	90.9	9.1	09
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	77.2	22.8	15
Jeppesen	570	82.5	17.5	19
U.S. Government	67	83.6	16.4	24

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION A: INFORMATION REQUIREMENTS

QUESTION A04:

Is the information difficult to interpret?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
 Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	20.7	79.3	11
U.S. Government	126	24.6	75.4	14
 Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	17.6	82.4	08
Jeppesen	19	21.1	78.9	25
U.S. Government	34	11.8	88.2	16
 Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	29.7	70.3	16
Jeppesen	573	22.0	78.0	27
U.S. Government	67	13.4	86.6	22

Appendix C
 STATISTICAL ANALYSIS
 OF
 SURVEY QUESTIONS

SECTION A: INFORMATION REQUIREMENTS

QUESTION A05:

Does the information transfer intuitively?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	66.3	33.7	17
U.S. Government	124	65.3	34.7	26
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	64.7	35.3	16
Jeppesen	19	68.4	31.6	12
U.S. Government	34	76.5	23.5	25
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	99	56.6	43.4	27
Jeppesen	558	70.6	29.4	28
U.S. Government	66	72.7	27.3	21

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION A: INFORMATION REQUIREMENTS

QUESTION A06:

Is there too much time required for sorting, selecting, and
interpreting information?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	40.2	59.8	06
U.S. Government	125	32.0	68.0	17
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	13
Jeppesen	19	36.8	63.2	16
U.S. Government	34	20.6	79.4	05
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	48.5	51.5	13
Jeppesen	571	39.4	60.6	08
U.S. Government	67	41.8	58.2	07

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION A: INFORMATION REQUIREMENTS

QUESTION A07:

Is there any required information, as presently displayed,
difficult to locate?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	80	33.8	66.3	10
U.S. Government	122	32.8	67.2	20
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	5.9	94.1	18
Jeppesen	18	22.2	77.8	08
U.S. Government	32	15.6	84.4	13
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	100	41.0	59.0	20
Jeppesen	550	28.7	71.3	12
U.S. Government	65	38.5	61.5	05

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION B: TERRAIN AND OBSTRUCTIONS

QUESTION B08:

Are there too many terrain and obstruction cues?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	84	4.8	95.2	16
U.S. Government	126	7.1	92.9	29
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	17.6	82.4	21
Jeppesen	19	10.5	89.5	29
U.S. Government	34	11.8	88.2	17
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	24.8	75.2	18
Jeppesen	573	19.7	80.3	25
U.S. Government	68	10.3	89.7	28

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION B: TERRAIN AND OBSTRUCTIONS

QUESTION B09:

Are there sufficient terrain and obstruction features displayed?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	84	64.3	35.7	15
U.S. Government	125	64.8	35.2	03
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	82.4	17.6	24
Jeppesen	19	89.5	10.5	03
U.S. Government	34	76.5	23.5	11
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	99	72.7	27.3	23
Jeppesen	565	77.0	23.0	11
U.S. Government	68	70.6	29.4	19

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION B: TERRAIN AND OBSTRUCTIONS

QUESTION B10:

In the approach plate sector section, should only the highest
obstruction be identified and displayed?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	84	10.7	89.3	14
U.S. Government	126	19.8	80.2	19
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	25
Jeppesen	19	31.6	68.4	14
U.S. Government	33	12.1	87.9	23
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	26.7	73.3	14
Jeppesen	572	22.4	77.6	26
U.S. Government	68	13.2	86.8	26

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION B: TERRAIN AND OBSTRUCTIONS

QUESTION B11:

Do the existing terrain features displayed on the approach charts enhance human performance?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	84	75.0	25.0	12
U.S. Government	124	63.7	36.3	08
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	76.5	23.5	14
Jeppesen	19	89.5	10.5	24
U.S. Government	34	70.6	29.4	29
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	98	64.3	35.7	19
Jeppesen	569	67.5	32.5	17
U.S. Government	68	70.6	29.4	29

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION B: TERRAIN AND OBSTRUCTIONS

QUESTION B12:

To aid in position awareness, should the terrain displayed be limited to only the most prominent river, lake or topographical feature?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	51.2	48.8	08
U.S. Government	125	37.6	62.4	10
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	58.8	41.2	23
Jeppesen	19	26.3	73.7	07
U.S. Government	34	52.9	47.1	19
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	47.5	52.5	12
Jeppesen	568	43.8	56.2	16
U.S. Government	36	97.2	2.8	10

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION C: RUNWAY INFORMATION REQUIREMENTS

QUESTION C13:

Should each approach chart have associated runway length and lighting information displayed?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	84.3	15.7	29
U.S. Government	126	88.9	11.1	09
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	52.9	47.1	26
Jeppesen	19	47.4	52.6	13
U.S. Government	34	79.4	20.6	20
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	100	69.0	31.0	09
Jeppesen	574	55.7	44.3	02
U.S. Government	67	85.1	14.9	18

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION C: RUNWAY INFORMATION REQUIREMENTS

QUESTION C14:

Should all the communication frequencies to be used (i.e.,
ATIS, APPCH, TWR, GND, CLNC DEL, DEP) be displayed on each
approach chart in the same location?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	84	98.8	1.2	19
U.S. Government	126	97.6	2.4	11
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	88.2	11.8	15
Jeppesen	19	78.9	21.1	01
U.S. Government	34	97.1	2.9	02
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	77.5	22.5	03
Jeppesen	575	75.5	24.5	04
U.S. Government	68	98.5	1.5	15

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION C: RUNWAY INFORMATION REQUIREMENTS

QUESTION C15:

ILS Frequencies and Courses are not presently grouped or standardized in information formats, e.g., ILS DME 12R Freq. 109.7 ID CRS 119° NOTE OFFSET LOC. Should this be standardized.

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	90.2	9.8	20
U.S. Government	126	92.1	7.9	05
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	88.2	11.8	11
Jeppesen	19	84.2	15.8	11
U.S. Government	34	94.1	5.9	01
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	93.1	6.9	07
Jeppesen	563	93.1	6.9	07
U.S. Government	68	88.2	11.8	09

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION C: RUNWAY INFORMATION REQUIREMENTS

QUESTION C16:

Have you experienced interpretational or information transfer
difficulties between approach charts of different publishers?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
<hr/>				
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	85.5	14.5	01
U.S. Government	120	48.3	51.7	07
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	58.8	41.2	05
Jeppesen	19	73.7	26.3	02
U.S. Government	30	20.0	80.0	26
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	64.4	35.6	10
Jeppesen	527	55.2	44.8	18
U.S. Government	66	60.6	39.4	08

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS

QUESTION D17:

Is there confusion interpreting MDAs or DHs on approach charts?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	15.9	84.1	21
U.S. Government	125	8.8	91.2	23
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	11.8	88.2	28
Jeppesen	19	15.8	84.2	28
U.S. Government	34	11.8	88.2	07
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	21.8	78.2	24
Jeppesen	573	15.2	84.8	14
U.S. Government	68	25.0	75.0	17

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS

QUESTION D18:

Do the procedures for missed approach and holding generate
excessive workloads during the go-around?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	59.8	40.2	03
U.S. Government	125	56.0	44.0	01
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	41.2	58.8	07
Jeppesen	19	5.3	94.7	23
U.S. Government	34	35.3	64.7	06
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	53.9	46.1	01
Jeppesen	575	46.8	53.2	01
U.S. Government	68	42.6	57.4	14

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS

QUESTION D19:

Are standard instrument arrival and approach chart procedures sufficiently compatible to reduce workload?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
 Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	82	80.5	19.5	28
U.S. Government	121	74.4	25.6	24
 Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	82.4	17.6	20
Jeppesen	19	68.4	31.6	20
U.S. Government	33	81.8	18.2	21
 Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	65.7	34.3	25
Jeppesen	570	69.5	30.5	22
U.S. Government	68	73.5	26.5	27

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS

QUESTION D20:

Do standard instrument departure procedures generate
excessive workloads when followed to completion?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
<hr/>				
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	26.5	73.5	18
U.S. Government	126	25.4	74.6	25
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	09
Jeppesen	19	26.3	73.7	21
U.S. Government	31	22.6	77.4	28
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	46.5	53.5	05
Jeppesen	569	44.1	55.9	03
U.S. Government	66	25.8	74.2	12

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS

QUESTION D21:

Have you experienced standard instrument departure
cancellations which generate excessive workloads?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	19.3	80.7	26
U.S. Government	126	17.5	82.5	22
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	12
Jeppesen	19	31.6	68.4	26
U.S. Government	31	25.8	74.2	27
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	33.3	66.7	28
Jeppesen	574	34.1	65.9	21
U.S. Government	66	30.3	69.7	23

Appendix C
S T A T I S T I C A L A N A L Y S I S
O F
S U R V E Y Q U E S T I O N S

SECTION D: ARRIVAL AND DEPARTURE NAVIGATION PROCEDURES REQUIREMENTS

QUESTION D22:

Does the use of standard instrument departures, as displayed,
create confusion?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	19.3	80.7	23
U.S. Government	125	12.8	87.2	28
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	17
Jeppesen	19	36.8	63.2	15
U.S. Government	31	29.0	71.0	22
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	28.4	71.6	26
Jeppesen	571	29.4	70.6	20
U.S. Government	64	23.4	76.6	20

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E23:

Is the approach chart symbology intuitive?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	74.7	25.3	27
U.S. Government	125	70.4	29.6	16
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	70.6	29.4	29
Jeppesen	18	61.1	38.9	18
U.S. Government	33	75.8	24.2	15
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	97	68.0	32.0	29
Jeppesen	557	76.7	23.3	29
U.S. Government	67	77.6	22.4	13

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E24:

Presently there is a difference in obstacle symbology between the types of publications of approach charts. Should they be standardized?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	97.6	2.4	02
U.S. Government	123	99.2	0.8	06
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	88.2	11.8	03
Jeppesen	18	88.9	11.1	10
U.S. Government	32	93.8	6.3	12
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	102	96.1	3.9	08
Jeppesen	552	93.1	6.9	10
U.S. Government	67	89.6	10.4	04

Appendix C
 STATISTICAL ANALYSIS
 OF
 SURVEY QUESTIONS

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E25:

From the human integration standpoint, should approach chart
 information be standardized and be located by priority?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	83	94.0	6.0	05
U.S. Government	123	93.5	6.5	02
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	88.2	11.8	04
Jeppesen	18	88.9	11.1	05
U.S. Government	34	94.1	5.9	03
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	101	98.0	2.0	02
Jeppesen	553	94.0	6.0	03
U.S. Government	66	93.9	6.1	01

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E26:

Have you experienced difficulty with the way Government
approach charts are packaged?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	81	32.1	67.9	24
U.S. Government	125	28.8	71.2	18
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	22
Jeppesen	17	35.3	64.7	04
U.S. Government	34	11.8	88.2	10
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	99	39.4	60.6	06
Jeppesen	422	34.8	65.2	23
U.S. Government	67	44.8	55.2	03

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E27:

Should the Government approach charts be packaged differently?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	79	34.2	65.8	04
U.S. Government	125	28.8	71.2	15
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	29.4	70.6	19
Jeppesen	17	47.1	52.9	17
U.S. Government	33	18.2	81.8	14
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	93	39.8	60.2	04
Jeppesen	356	41.6	58.4	24
U.S. Government	66	50.0	50.0	02

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E28:

Should approach chart information be organized and structured
into standardized formats for use with electronic displays?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
<hr/>				
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	75	88.0	12.0	09
U.S. Government	117	79.5	20.5	27
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	16	68.8	31.3	27
Jeppesen	19	78.9	21.1	06
U.S. Government	29	79.3	20.7	24
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	89	80.9	19.1	17
Jeppesen	494	87.4	12.6	15
U.S. Government	52	67.3	32.7	16

Appendix C

S T A T I S T I C A L A N A L Y S I S

O F

S U R V E Y Q U E S T I O N S

SECTION E: INFORMATION LOCATION, SYMBOLOGY, AND PACKAGING

QUESTION E29:

Have you experienced ATC communication requests that generate conflicts with your interpretation of approach chart procedures?

AVIATION ACTIVITY

APPROACH CHART USED	RESPONSES	% YES	% NO	QUESTION RANK
Military (USAF/MAC & IFC) - Airplane				
Jeppesen and U.S. Government	81	27.2	72.8	07
U.S. Government	120	22.5	77.5	04
Civil & Military (USAF MAC) - Helicopter				
Jeppesen and U.S. Government	17	17.6	82.4	10
Jeppesen	19	10.5	89.5	19
U.S. Government	33	18.2	81.8	18
Civil Air Carrier & Gen. Av./Corporate - Airplane				
Jeppesen and U.S. Government	93	25.8	74.2	11
Jeppesen	523	27.3	72.7	06
U.S. Government	67	17.9	82.1	11

Appendix D

Comment To Question No. A01 Survey Number: 0005

The overall (Gov't.) format is excellent, however in some cases more information such as a fix or facility's bearing and distance in relation to others could aid in maintaining position awareness.

Comment To Question No. A01 Survey Number: 0006

I would like to see both ASR & PAR mins (if applicable) depicted on the approach plate rather than just the lowest GCA mins as presently done.

Comment To Question No. A01 Survey Number: 0114

Need to put glideslope angles on ILS approach plates. DoD has them. Why can't Jepp.?

Comment To Question No. A01 Survey Number: 0245

Would be nice to include lat./long. of intersections, VOR, ADF, etc. on all procedure charts.

Comment To Question No. A01 Survey Number: 0266

The ATIS, clearance freq. etc., needs to be on all appropriate charts. (e.g., ATIS needs to be on all arrival charts, the clearance freq. needs to be on all dept. & appr. charts. Field elevation needs to be on all dept. charts because a loss of engine on take off requires a level-off and clean-up altitude AGL.) Having field elev. on the dep. chart in front of the pilot would be very helpful for a quick reference. Appropriate MDA's and DH's are sometimes difficult to ascertain when certain approach or runway equipment is inop. Many lost communications procedures on departure charts are very confusing.

Comment To Question No. A01 Survey Number: 0270

Jepps do not show runway slope or close-in obstruction slope.

Comment To Question No. A01 Survey Number: 0317

Runway slope in degrees should be shown.

Comment To Question No. A01 Survey Number: 0436

Need to know runway gradient for each runway.

Comment To Question No. A01 Survey Number: 0513

Runway slope info. on Jeppesen would be helpful.

Appendix D

Comment To Question No. A01 Survey Number: 0544

Runways that have overruns (or stopways) are not always shown, i.e., runway 13R/31L Dallas Love Field. Jeppesen depiction on 11-1 shows all as usable runway when both ends actually have @ 500' of overrun. Other airports have same.

Comment To Question No. A01 Survey Number: 0552

Add runway slope information.

Comment To Question No. A01 Survey Number: 0570

There are many charts with too much clutter, too many stepdowns in altitudes and fixes. See Los Angeles approach charts for R/W 25 L & R.

Comment To Question No. A01 Survey Number: 0581

Runway slope information should be added to runway information section, as well as frequency or telephone number to use when closing IFR flight after landing at uncontrolled airports. The latter should reduce the frequency congestion caused by having to ask for this information at a time when both pilot and controller workload is high.

Comment To Question No. A01 Survey Number: 0592

Put landing runway length somewhere on the approach page but safely away from APT elev., i.e., ILS 31L Dallas TX. 7609 ft. (APT elev. 487).

Comment To Question No. A01 Survey Number: 0610

It would be nice to include on the approach plate (maybe with the Lat/Long) the Low Altitude Chart number as a reference to save time in flight planning.

Comment To Question No. A01 Survey Number: 0614

Both Jepp. and Gov't need to put all frequencies and Radial/DME for ALL points on arrival, departure and approach charts. This is the age of RNAV? Any Nav. point with bearings only is of little use today.

Comment To Question No. A01 Survey Number: 0638

The method of depicting minimum and maximum altitudes on an approach is much better on the DoD charts. Also Jepp. should add the min. safe/emergency safe altitude notes that the DoD charts display. Runway length displayed on each individual chart would also be helpful.

Appendix D

Comment To Question No. A01 Survey Number: 0667

Runway length needs to be displayed on each chart which depicts runway lay out. Jeppesen fails to do this on the Airport Runway/Taxiway diagram.

Comment To Question No. A01 Survey Number: 0706

Comm. frequencies should be displayed on ALL plates (i.e., visual approach plates to DCA and LGA).

Comment To Question No. A01 Survey Number: 0720

I would like to see runway information length, lighting etc. on each plate for the designated approach. Also all frequencies on each chart. Jeppesen revisions are too numerous and the changes may be insignificant, or should be notamed only.

Comment To Question No. A01 Survey Number: 0745

Minimum safe altitude - not standardized.

Comment To Question No. A01 Survey Number: 0748

Runway slope or gradient should be published.

Comment To Question No. A01 Survey Number: 0751

I would like to see the appropriate flight service station freq. displayed in the communications freq. section block for each airport. Ex. Sometimes when calling clearance delivery we are told to contact the local FSS because our canned flight plan is not in the computer. Having to look up the FSS freq. of the local Nav. chart takes precious time having the local FSS freq. displayed on the first (main) page of each airport.

Comment To Question No. A01 Survey Number: 0782

Would be convenient to have runway gradients published with runway information, especially for jet operators. Would help to have outline of city on birds-eye view on approach chart.

Comment To Question No. A01 Survey Number: 0783

What is distance of circle symbol on plate from runway? Regardless of legend, show radius on outside of circle, each plate.

Comment To Question No. A01 Survey Number: 0783

Why isn't word "LIGHTING" shown in additional runway information section?

Appendix D

Comment To Question No. A01 Survey Number: 0783

Why leave out horizontal distance from facility to first fix when it is shown for all other fixes on vertical display?

Comment To Question No. A01 Survey Number: 0784

ATIS freq's should be on all arrival charts when published.

Comment To Question No. A01 Survey Number: 0817

Freq. information needs to be added to NOS airport diagrams.

Comment To Question No. A01 Survey Number: 0841

Frequently, "arrival gate" fixes displayed on STAR's and approach plates do not show long/lat coordinates. Since these are not on high altitude charts and low charts have no coordinates, we are unable to determine information required for Long Range Navigation which we always navigate by if possible. NOAA formerly produced for the FAA a controller chart supplement which listed this information but no longer does. Why?

Comment To Question No. A01 Survey Number: 0860

Runway information: procedure to increase or decrease runway or approach lights not published in detail at uncontrolled airports. Normally nobody carries AIM with them so its difficult to know at unfamiliar airport how many clicks on the mike does what.

Comment To Question No. A01 Survey Number: 0889

Approach chart information badly needed: 1) Minimum vectoring altitudes corresponding to ATC requirements, with accompanying bearing & distance information from airport; 2) Bearing & range information for terrain & obstruction hazards; 3) RNAV information for airport location; 4) Additional tower & ground frequencies where more than one are in use (e.g., Atlanta Hartshield); and, 5) Lost communication procedures to be used during radar vectoring in IMC. Many approaches are exceedingly complicated and confusing, requiring the use of multiple radio receivers and/or frequencies.

Comment To Question No. A01 Survey Number: 0921

PAR and AOR minimums (DoD) - I like to see those on the bottom of each plate with the other approach minimums.

Appendix D

Comment To Question No. A01 Survey Number: 0988

A standardized symbol and location for the missed approach point should be used. The timing block should be included in all approaches as a backup.

Comment To Question No. A01 Survey Number: 1028

DoD doesn't publish all available approaches at an airfield & several times I have been cleared for an approach we do not have.

Comment To Question No. A02 Survey Number: 0013

Remarks sections of procedures are nearly always cluttered and difficult to comprehend.

Comment To Question No. A02 Survey Number: 0019

All IAP's (DoD and Civil) are too cluttered. You don't need all that information. And - although it will never come to pass, all (DoD and Civil) should be standardized.

Comment To Question No. A02 Survey Number: 0042

Look at EL Toro - way too cluttered. Include ASR mins. on the front of the plate. Standardize, standardize, standardize! I am a UPT instructor and every approach plate, is a new experience! Some of those approaches take an hour to figure out!

Comment To Question No. A02 Survey Number: 0072

Too much garbage on charts, print too small to read when even moderate corrective glasses are needed. Terrain obstacles are noted but no method is used to indicate exactly where they are from the approach path which makes this information unusable and clutters up the chart. ILS freqs. headings and IDs should be in very bold print so as to separate this information from other information on the chart.

Comment To Question No. A02 Survey Number: 0344

Too much radial information which clutters charts.

Comment To Question No. A02 Survey Number: 0661

Approach plates are cluttered and at times confusing but do not compare to the Hi Altitude charts especially in the East. It is an absolute miracle that some one is not running into somebody every day! The whole system is a mess and will only get worse!

Appendix D

Comment To Question No. A02

Survey Number: 0722

There are too many traps and inconsistencies on MDA/DH determinations. The plates are too generalized. Jepps Charts cover Cat A & B aircraft in our Part 121 useage, making them cluttered. It seems a completely new type of approach plate could be thought up by users that would be easier to read during the difficult period during approach. I believe that runway info. should be available for the runway being approached on the plate being used and not just on the airport page. Good luck!

Comment To Question No. A02

Survey Number: 0730

Any freq. that has nothing to do with the approach should be eliminated.

Comment To Question No. A02

Survey Number: 0731

Some approach plates very cluttered. Small print is hard to read at night and in turbulence.

Comment To Question No. A02

Survey Number: 0744

Charts should be more oriented to jet-only operations in jets. No requirement for two sets of course lines in procedure turns. Possibly only C and D aircraft info. for charts used on Cat D aircraft.

Comment To Question No. A02

Survey Number: 0765

Chart Design, or lack of it, is the problem, not "Clutter" - a typical Cop-out (FAA response). Redundancy, e.g., profile data, contributes to clutter/congestion of info.

Comment To Question No. A02

Survey Number: 0767

The Jeppesen charts seem to be far too cluttered with information. Only the inbound heading, ILS (approach) freq., D.H. or MDA should be on chart. All missed approach info. should be standard - straight ahead. Runway heading to 3000', all these charts should not need to carry these bulky items.

Comment To Question No. A02

Survey Number: 0816

Most of the U.S. charts both approach and enroute are OK. It is the Latin American and international charts where too much is put in too small an area. At night and low light situations it becomes hard to sort the information out. Would like to see info. given to Jeppesen from all countries standardized. South America has some approaches that take some thought. If one uses the Avchart course offered by Jeppesen a great deal is cleared up!

Appendix D

Comment To Question No. A02 Survey Number: 0844

Most approach charts are too cluttered and difficult to read. Some approach procedures are so complex as to be dangerous to execute. There is far too much information on approach charts for the crew to digest and interpret. The cockpit workload is excessive.

Comment To Question No. A02 Survey Number: 0867

Enroute charts for the East Coast are far too cluttered.

Comment To Question No. A02 Survey Number: 0906

The info. depicted on the DoD approach plates is cluttered. For night operations, it is sometimes difficult to see all the necessary detail and small print. Recommend that the runway length and lighting be put on a separate page; i.e., with the airfield diagram. This would free some space to enlarge the printing for minimums and wx requirements. The binding on the approach plates is stiff and makes it difficult to place the approach plate in a holder such that all the information is visible. Perhaps a loose-leaf type binding would be better.

Comment To Question No. A02 Survey Number: 1016

Approach plates are tending to become too cluttered because of placing too many approaches on one plate.

Comment To Question No. A03 Survey Number: 0623

The only problems I have with Jepp. format is: 1. With having to go to the lead plate for freq. information. 2. I find that their STAR plates are hard to pick out proper information quickly. Each STAR has five or six different feeder routes to the main fix that are listed vertically down the left side. I believe it would be easier to find the proper feeder if they were listed horizontally in bold type across the top.

Comment To Question No. A03 Survey Number: 0809

I believe a proper flow of information would be to put the profile view immediately after the plan view (as current) followed by the minimums blocks followed by the missed approach procedure. This the way we fly it - why not print it that way?

Appendix D

Comment To Question No. A04 Survey Number: 0031

When multiple IAP's are printed on the same page, it is sometimes difficult to interpret the data because the approach is too cluttered. Minimums are especially difficult to determine when they change based upon your nav. equip. capabilities (e.g., often times the MDA will be lower if you can identify a step down fix). Visibility mins. are unnecessarily complicated with light-out, and DH shouldn't be adjusted for inop. MM - throw out the FAA's useless "inoperative components table"!

Comment To Question No. A04 Survey Number: 0827

Take off and IFR departure procedures are difficult to interpret.

Comment To Question No. A04 Survey Number: 1014

Pilots low on experience often never know all the codes & data available on plates.

Comment To Question No. A04 Survey Number: 1038

Important "course" and "Alt" information is often hidden in clutter--this is CRITICAL information! we should emphasize the critical information (i.e., underscore, bold print, etc.).

Comment To Question No. A05 Survey Number: 0279

Color depiction on approach charts would be very helpful. Approach plates in color would be even more helpful.

Comment To Question No. A05 Survey Number: 0618

I prefer DoD publications to Jepps, as I find the flow and logic (symbols, etc.) more compatible w/what actually occurs.

Comment To Question No. A05 Survey Number: 0624

We need to all operate on one standard. What one person looks at the other must have. What we have must make sense and be logical. You should not have to ask, "I wonder what that means."

Appendix D

Comment To Question No. A05

Survey Number: 0636

I feel that there is too much information on most approach plates. They are generally too cluttered and certainly, therefore, hard to read, especially when the print is this small. I'm almost 53 years old & could use BIGGER PRINT, especially at night. They need to somehow put on the plates what you need to make a safe approach to landing or go around, with what you need to do this all on one sheet. I don't need to be looking for an altitude I can descend to or a freq. I need to contact someone on a missed approach. Terrain-wise, I think if it could kill me I need to know about it topographically. Places like Geneva, Mexico City, San Diego, Vegas, Guatamala City and many more, you need to have a better idea than having to switch between the area chart and the arrival/dept. plate trying to see if you can turn here or not, especially on the 1st time into an airport.

Comment To Question No. A05

Survey Number: 0793

After many years looking at them, I have grown accustomed to the charts; however, seeing the problems new people have interpreting them, I think there must be a better way.

Comment To Question No. A05

Survey Number: 0795

Don't use words like "intuitively" in a pilot questionnaire.

Comment To Question No. A06

Survey Number: 0084

Approach charts have too much information. Do away with the nice to know information so we can find the essential information.

Comment To Question No. A06

Survey Number: 0267

Fixes with published crossing restrictions should be highlighted since they must often be referred to several times per leg - saves "search time."

Comment To Question No. A06

Survey Number: 0332

I would like to see all the most important info. for an approach (Freq. I.D, inbd. course, altitudes, missed, approach, etc.) on the plan view in one place rather than two.

Comment To Question No. A06

Survey Number: 0356

Notes and comments on plates are sometimes hard to locate even though they may contain very important information, i.e., pilot controlled lighting, obstacles, and items that change approach minimums.

Appendix D

Comment To Question No. A06 Survey Number: 0591

Pilots differ in their abilities to look at approach plates quickly and grasp essential information. This fact is more important than chart formats.

Comment To Question No. A06 Survey Number: 0598

There is too much information on the typical approach chart; seems that it was written for lawyers instead of pilots. Simplify!!!

Comment To Question No. A06 Survey Number: 0630

Often difficult to locate and define missed approach point and navigate to it.

Comment To Question No. A06 Survey Number: 0650

Approach charts to some airports are excessively "BUSY". Can't find important information. Missed approach procedures at some airports are excessively complicated; seems unnecessary in a radar environment. SIGMETS & AIRMETS; should read out in plain English instead of 3 letter identifiers, ex., "DALLAS" Vs "DFW" plus, if area is unfamiliar, takes much valuable time to look up.

Comment To Question No. A06 Survey Number: 0663

There is too much information presented most of the time. It seems that if it's there someone not involved in the operation of the A/C is legally absolved from responsibility. We need the priority of information more clearly presented, i.e., consistent with phase of flight and workload. Information input from ATC or approach control, and manipulative requirements preclude reading a novel or searching for information on a chart. I recommend simplification, prioritization, and improved presentation.

Comment To Question No. A06 Survey Number: 0693

Frequencies should be listed in order of the approach (example: ATIS - LOC/ILS - OM - VOR/DME - Approach - Tower - Ground - Clear Del).

Comment To Question No. A06 Survey Number: 0694

Missed approach procedures are just too complex.

Comment To Question No. A06 Survey Number: 0742

I definitely want to see the following changes: 1.- Tower and ground control frequencies on departure plates. 2.- ATIS freq on approach plates (STARs, and profile descent plates). Pilots should be able to look outside during the critical phases of flight. Having the frequencies they use on the plates that they are apt to be using during those phases of flight ARE A REQUIREMENT.

Appendix D

Comment To Question No. A06 Survey Number: 0792

Largest problem being any information appearing difficult to interpret or locate is automatically disregarded, overlooked.

Comment To Question No. A06 Survey Number: 0813

More difficult to pick out needed information on NOAA than Jeppesen.

Comment To Question No. A06 Survey Number: 0827

Take off and IFR departure procedures.

Comment To Question No. A06 Survey Number: 0883

Yes, when NOAA IAP's are used.

Comment To Question No. A06 Survey Number: 0904

Headings on plan view & altitudes/dist. on profile should be large & bold type. Ceiling/Viz/RVR minima should be the same located immediately in box below profile.

Comment To Question No. A06 Survey Number: 1029

The Yes to this question is a reflection to ATC. The use of parallel runways at high density airports requires pilots to have two and sometimes three approach plates displayed due to slotting for an acceptable land sequence and not knowing what runway he is using while on vectors.

Comment To Question No. A07 Survey Number: 0011

Put appropriate radio frequencies such as CLNC delivery on SID's. Also providing a small airport diagram on each page of a SID (just like approach plate) would help.

Comment To Question No. A07 Survey Number: 0014

DoD information is located in multiple areas, FLIP, IFR, SUP, approach charts etc. Jeppesen is much better, most all information is in one book, grouped by the airport.

Comment To Question No. A07 Survey Number: 0021

Final approach fix indicated on the plan view would help. Also, some important remarks are missed at times because of being buried in the remarks section.

Appendix D

Comment To Question No. A07 Survey Number: 0023

Lat/Long.

Comment To Question No. A07 Survey Number: 0033

Inoperative components table application/radar approach minimums.

Comment To Question No. A07 Survey Number: 0044

Frequency information is often cluttered and not standardized.

Comment To Question No. A07 Survey Number: 0052

Station identifiers should be placed on the high charts as they are on the low charts.

Comment To Question No. A07 Survey Number: 0053

It takes too much analysis to determine if the approach is compatible with aircraft equipment.

Comment To Question No. A07 Survey Number: 0055

Sometimes it's hard to find and interpret some of the written information on charts i.e., too cluttered.

Comment To Question No. A07 Survey Number: 0059

Approach plate - Approach minimums are printed too small and should be located higher on the page.

Comment To Question No. A07 Survey Number: 0060

Glideslope of ILS is sometimes hard to find in a crunch.

Comment To Question No. A07 Survey Number: 0069

Radar minima should be displayed on the approach plate. This would only affect a small % of the approach plates and it would enhance safety.

Comment To Question No. A07 Survey Number: 0073

Unusual character of approaches need to be in bold type, e.g. "ILS DME" or "Back Course."

Appendix D

Comment To Question No. A07 Survey Number: 0083

Intermediate approach step-down points.

Comment To Question No. A07 Survey Number: 0086

Approach lighting is difficult to visualize.

Comment To Question No. A07 Survey Number: 0091

Highlight the missed approach information better.

Comment To Question No. A07 Survey Number: 0096

Proper enroute frequency on enroute charts (ATC sectors).

Comment To Question No. A07 Survey Number: 0098

Missed approach holding patterns need to be included on all approach plates.

Comment To Question No. A07 Survey Number: 0106

Increased minimums due to components inop.

Comment To Question No. A07 Survey Number: 0119

Notes.

Comment To Question No. A07 Survey Number: 0121

Runway lighting information for a particular straight-in approach.

Comment To Question No. A07 Survey Number: 0124

ATIS info. (Freq.) only on one page - should be on all - also T.O. info. difficult to interpret.

Comment To Question No. A07 Survey Number: 0129

Too much sorting to locate necessary frequencies (i.e., Dep Freq on SID's, runway info., lighting available).

Comment To Question No. A07 Survey Number: 0137

Off airway terrain heights - i.e., Boise, ID from SE.

Appendix D

Comment To Question No. A07 Survey Number: 0138

Locating radio frequencies (Tower - ATIS - departure etc.)

Comment To Question No. A07 Survey Number: 0142

Take-off restriction information.

Comment To Question No. A07 Survey Number: 0172

The approach criteria, i.e., FAF and/or IAP without/with G/Slope etc. Could be "cleaner".

Comment To Question No. A07 Survey Number: 0214

Runway length.

Comment To Question No. A07 Survey Number: 0217

Need more prominent display of indicator for radar environment. Lack of the symbol (R) is not always noted by pilots flying IFR infrequently.

Comment To Question No. A07 Survey Number: 0218

DH - In rough air and/or poor lighting. Maybe should be reverse colors (white or black).

Comment To Question No. A07 Survey Number: 0220

NOAA chart: (1.) Minimum with equipment out. (2.) Airports should be listed in NOAA in same format as Jepp.

Comment To Question No. A07 Survey Number: 0230

Radial/DME of crossing fix's - keeping "positional awareness" is most difficult.

Comment To Question No. A07 Survey Number: 0232

ATIS Freq.

Comment To Question No. A07 Survey Number: 0242

Takeoff minimums could be more easily located and grouped better for easy interpretation.

Appendix D

Comment To Question No. A07 Survey Number: 0248

Runway length & lighting, and frequency information for ATIS & CLNC (as well as TWR & GND) should be on each chart.

Comment To Question No. A07 Survey Number: 0249

Missed approach procedures are excessively "busy" at a critical time.

Comment To Question No. A07 Survey Number: 0251

Jeppesen charts currently show runway lengths on one page. When cleared for approach to a particular runway and subsequently cleared to land on a different runway may require flipping through charts at a critical phase of flight to check runway lengths. Runway diagrams should be displayed on all approach plates. i.e., as in NOAA & DOD.

Comment To Question No. A07 Survey Number: 0262

All frequencies should be listed on all pages.

Comment To Question No. A07 Survey Number: 0268

Every airport should be fully diagrammed on the back of at least one of its approach plates.

Comment To Question No. A07 Survey Number: 0277

Present high alt. charts can be very confusing around high density areas(city-area's) i.e., airways seem to overlap and it requires some study to sort out.

Comment To Question No. A07 Survey Number: 0308

Distance to MAP.

Comment To Question No. A07 Survey Number: 0313

Sometimes hard to locate transition alt. on some foreign plates.

Comment To Question No. A07 Survey Number: 0328

Notes, offset or angles approach information.

Appendix D

Comment To Question No. A07 Survey Number: 0382

It would be nice if ATIS info. was on the STARS.

Comment To Question No. A07 Survey Number: 0383

You are planning a ILS app. & you are given a clearance to a nav. fix that is only shown on the NDB. approach plate.

Comment To Question No. A07 Survey Number: 0393

Items such as "Radar or DME required" and other notes are sometimes difficult to locate or are not obvious enough. A standard area or section for such comments would help.

Comment To Question No. A07 Survey Number: 0404

Perhaps things like the MDA or decision height could be put in bolder print or in a different location so if a question arises a quick glance will be all you need to locate the number.

Comment To Question No. A07 Survey Number: 0411

Some holding patterns after missed approach & some frequencies.

Comment To Question No. A07 Survey Number: 0414

Parking Spots & Gates on DoD.

Comment To Question No. A07 Survey Number: 0415

1) IFR. departure procedures. 2) No slope information on Jeppesen. Many of the questions are too wide reaching for simple yes or no answers.

Comment To Question No. A07 Survey Number: 0425

MSA location should be standardized.

Comment To Question No. A07 Survey Number: 0430

Transition altitude on overseas approach plates is sometimes difficult to find.

Comment To Question No. A07 Survey Number: 0445

Terrain contours are non-existent. Only spot elevations are available.

Appendix D

Comment To Question No. A07 Survey Number: 0446

On Jeppesen format at least the MAP should be more prominently listed. - Bold face!

Comment To Question No. A07 Survey Number: 0450

At times print is too small and/or very close to other lines on approach plate.

Comment To Question No. A07 Survey Number: 0456

Need some more specific info. on location/type of terrain hazard (e.g., hills, mountains, towers, etc.) Topography within 25 miles as background for approach procedure would be ideal.

Comment To Question No. A07 Survey Number: 0464

Missed approach point (MAP) information, pilot controlled lighting information.

Comment To Question No. A07 Survey Number: 0477

Highest obstruction point.

Comment To Question No. A07 Survey Number: 0486

Approach facility "Frequency, final approach course" box.

Comment To Question No. A07 Survey Number: 0502

I would like to see the vertical & horizontal boundaries of each TCA put on each precision and non-precision approach plate for all airports possessing published approaches in or near a TCA.

Comment To Question No. A07 Survey Number: 0516

Some intersections are "only" located on "one" chart (STAR, SID, Low Alt, Hi Alt or Approach Chart).

Comment To Question No. A07 Survey Number: 0518

MSA circle for 25 NM is not standardized.

Comment To Question No. A07 Survey Number: 0523

Radio freqs. should be on all plates. Approach & runway lighting codes are difficult to interpret.

Appendix D

Comment To Question No. A07 Survey Number: 0561

Missed appr. diagram difficult to find and interpret. Logical sequence should be: 1) MSA; 2) instrument freq. & headings; 3) MAP, DH data; 4) timing data, and 5) missed appr. data. Also included on the front of the plate should be runway data (including: ALS; RW Length, width, slope).

Comment To Question No. A07 Survey Number: 0562

Finding MDA information for interm non-precision approach.

Comment To Question No. A07 Survey Number: 0577

Alternate airport information and Min. takeoff info.

Comment To Question No. A07 Survey Number: 0584

Certain altitudes like marker crossing altitudes are very difficult to find - also frequencies.

Comment To Question No. A07 Survey Number: 0590

Alternate landing minimums.

Comment To Question No. A07 Survey Number: 0591

Intersections shown on plate but defined only on enroute chart.

Comment To Question No. A07 Survey Number: 0596

Add CLEARLY, closest FSS and freq.

Comment To Question No. A07 Survey Number: 0604

TCA plates: Often difficult to determine where you are on chart.

Comment To Question No. A07 Survey Number: 0605

At times, the Missed Approach Point can be hard to interpret.

Comment To Question No. A07 Survey Number: 0606

Frequencies.

Appendix D

Comment To Question No. A07 Survey Number: 0607

All usable frequencies should be on each chart instead of the first in series.

Comment To Question No. A07 Survey Number: 0608

On many charts it is difficult to determine if it is necessary to use some mike-keying procedure to activate runway lights. Some more plain symbols should be used to indicate the necessity for special procedures. We've been trapped by this several times - Best (or Worst) example - Jackson, WYO.

Comment To Question No. A07 Survey Number: 0612

Jeppesen have small, pertinent, notes that can be easily overlooked.

Comment To Question No. A07 Survey Number: 0615

Primary frequency for the approach should be more prominent.

Comment To Question No. A07 Survey Number: 0616

Information on low charts needed on high altitude high speed jet profiles (intersections used by departure & arrival controllers).

Comment To Question No. A07 Survey Number: 0617

Remarks are occasionally put in areas of the profile area which are not consistent with regard to area of placement.

Comment To Question No. A07 Survey Number: 0622

The outbound heading on approaches is too small and the plate is cluttered.

Comment To Question No. A07 Survey Number: 0627

Minimum section too cluttered, airport information needs to be displayed on every chart, like NOS and have more information like Jeppesen.

Comment To Question No. A07 Survey Number: 0632

Frequencies are not easily available.

Comment To Question No. A07 Survey Number: 0642

Need info. Re: Licensed Wx Observer, i.e., FAR 135/121.

Appendix D

Comment To Question No. A07 Survey Number: 0643

In one instance ATC cleared me from 8000' to 5000'. Then immediately cleared me for the approach. I continued descent to IAP (listed 4000). Controller called to tell me that I should be at 5000. This was an operational ATC error but had me double checking charts.

Comment To Question No. A07 Survey Number: 0650

Jepp. 1. Distance from MAP to hold fix. 2. Distance from outside limit of procedure turn to field when DME is available, etc. 3. Distances from airway fixes to LOM's.

Comment To Question No. A07 Survey Number: 0654

Locating lighting information is often difficult; fine print often overlooked at night. Approach light info. very hard to decipher.

Comment To Question No. A07 Survey Number: 0662

Baset X (22.3 DME from ILAX) and Royal X (22.2 DME from LOSS) with their "window" of 7000' maximum and 6600' minimum should be portrayed on Los Angeles arrivals 10-2, 10-2C, 10-2D. On the ILS approach plates, some symbology should be added to show the "window" more prominently. Many of my F/O's miss it.

Comment To Question No. A07 Survey Number: 0664

ATIS arrival frequency should be printed on top of arrival charts as well as approach plates.

Comment To Question No. A07 Survey Number: 0669

Locate tower and ground control frequencies separately.

Comment To Question No. A07 Survey Number: 0672

Pilot activated lighting.

Comment To Question No. A07 Survey Number: 0674

VOR DME distance to airport.

Comment To Question No. A07 Survey Number: 0675

On the Jeppesen high altitude charts. It is at times difficult to determine the correct longitude and latitude for certain intersections.

Appendix D

Comment To Question No. A07 Survey Number: 0676

Pertinent information (times, headings, minimums, MDH, DH) should be in a darker print, for easier recognition at critical times.

Comment To Question No. A07 Survey Number: 0677

DME backup on Non-DME ILS, VOR, approaches sometimes difficult to locate.

Comment To Question No. A07 Survey Number: 0683

Notes, transition levels & alts., Lat/Long of fixes.

Comment To Question No. A07 Survey Number: 0685

ATIS, TWR and GND control should be listed on all standardized instrument arrival plates; ATIS, CLNC DEL, TWR and GND control should be listed on all standardized departure plates.

Comment To Question No. A07 Survey Number: 0688

1) Notes on T/O and Landing Minimums (for example). 2) Some obstruction heights (height of mountains west of ELP on VOR approach to runway 26 as an example).

Comment To Question No. A07 Survey Number: 0690

A list of all available IFR procedures for an airport grouped in one place would be helpful. I have only used Jepp. so I can not comment on other formats.

Comment To Question No. A07 Survey Number: 0691

Clearance delivery freq. should be on all pages - or all sequenced freq. should be presented on all pages to eliminate trying to find the first page.

Comment To Question No. A07 Survey Number: 0698

Civilian NOTAMS are somewhat difficult to find. Must use a phone to find NOTAMS.

Comment To Question No. A07 Survey Number: 0710

IFR departure procedures are poorly displayed for those airports w/o SID's.

Comment To Question No. A07 Survey Number: 0715

Non-standard take off minimums.

Appendix D

Comment To Question No. A07 Survey Number: 0723

Relevant information must be picked out of clutter in a zero time frame: i.e., approach vector for delay - frequency overload and no idea where we've gone or how to get back.

Comment To Question No. A07 Survey Number: 0725

Notes, (such as glide slope unusable below a certain altitude), are not conspicuous.

Comment To Question No. A07 Survey Number: 0726

"Notes" are often scattered and difficult to locate & interpret.

Comment To Question No. A07 Survey Number: 0729

Minima display on Jeppesen should be printed for each category of A/C instead of all. This allowing larger type size. Annotated Minima should be disallowed, or if allowed should have the lower minima noted rather than higher.

Comment To Question No. A07 Survey Number: 0734

Yes, runway length, lighting system, VASI and grooving.

Comment To Question No. A07 Survey Number: 0744

It would be helpful to have an indicated Alt shown at 1 nm from runway end. This would be useful for a visual descent point and also as a last chance check if trying to intercept g/s from above in better than minimum conditions.

Comment To Question No. A07 Survey Number: 0746

Special comment such as: "migratory birds", "LLWSAS", "Offset Loc" and similar data is small and found all over the page at different places.

Comment To Question No. A07 Survey Number: 0755

Minimum - IFR departure requirements - T.O. Limits - ATIS Frequencies.

Comment To Question No. A07 Survey Number: 0762

QNE & QNH should be located on all international plates.

Appendix D

Comment To Question No. A07 Survey Number: 0766

It would be helpful if Lat. & Long. were displayed on all approach charts rather than having to go back to enroute chart or SID's and STAR's for this info.

Comment To Question No. A07 Survey Number: 0774

Information necessary to fly the approach is not located in one place. It may be scattered in various places on the page or actually located on different pages or sections in the approach book (example: radar approach information). For last minute changes during a critical phase of flight this information should be readily available and "hunting" should not be required

Comment To Question No. A07 Survey Number: 0780

The block for DoD runway information is too small and cluttered. You almost need a magnifying glass to review it.

Comment To Question No. A07 Survey Number: 0782

Frequencies only on first chart. May be better to have all frequencies on each chart.

Comment To Question No. A07 Survey Number: 0795

Notes are the problem.

Comment To Question No. A07 Survey Number: 0799

Approach minimums block should be simplified by deleting the asterisk notarial system.

Comment To Question No. A07 Survey Number: 0802

Transition levels should be on all approach charts.

Comment To Question No. A07 Survey Number: 0806

Lat/Long coordinates.

Comment To Question No. A07 Survey Number: 0807

The information on what the pilot will see when he breaks out of the weather (light pattern, approach angle to runway, general visual picture) is too limited; one letter designating approach light structure and one little arrow indicating relative approach path to the runway.

Appendix D

Comment To Question No. A07 Survey Number: 0808

On charts around Nav. Aids close or on large heavily used airports, i.e., Atlanta, Chicago, etc., there is so much information that it is occasionally very difficult to find unless you are familiar with the area or studied it extensively prior to arriving.

Comment To Question No. A07 Survey Number: 0813

Minimums with inoperative equipment or components should be on charts for quick access. Also, DME or distances from fixes.

Comment To Question No. A07 Survey Number: 0820

Basic approach and missed approach information such as headings and altitudes should stand out and be easily read at night, using dim cockpit lighting.

Comment To Question No. A07 Survey Number: 0822

It seems easy to misread the MDA for DH and vice versa.

Comment To Question No. A07 Survey Number: 0824

Some of the notes on enroute charts are difficult to find especially the international charts, they are scattered all over, consolidating them would help.

Comment To Question No. A07 Survey Number: 0825

Many times - just after take-off, no one can remember the departure control frequency or some other frequency we were suppose to remember and a quick search must be made for the page with the frequencies. It would help to have all of them on each approach page.

Comment To Question No. A07 Survey Number: 0831

ATIS Freq., MAP/MDA depiction can cause confusion.

Appendix D

Comment To Question No. A07 Survey Number: 0832

The most important part of an instrument approach is the preparation. As a check airmen for several firms and instructor in B-727 for numerous pilots of many countries, the Americans are most generally disorganized because they do not all brief an approach plate the same - sometimes within the same cockpit. The Canadians are the absolute best, because they are taught a standard way to brief. In absence of that advantage, in a sim. period I get 4 approaches in a two hour period VS. 6 to 8 for the Canadians. Perhaps the items to be briefed prior to an approach should somehow be outlined, boxed, bolded, numbered or any other method to effect a uniform method of reviewing mentally, prior to the approach, the essential information. I can demonstrate my point on request. The information on the present Jeppesen charts is good but confusing if one doesn't know what the need to know information is. Believe me, it's not taught in the U.S.

Comment To Question No. A07 Survey Number: 0833

Jeppesen runway length should be listed on each chart, not just behind 11-1 (airport diagram).

Comment To Question No. A07 Survey Number: 0843

Runway lengths and lighting should be on each approach chart.

Comment To Question No. A07 Survey Number: 0845

TCA's are too difficult to interpret. Confusion occurs when: 1. "Cleared for visual approach" 2. Navigating to an airfield other than the one used for describing the TCA. Feeder fix information (seldom used) should be simplified as to route and altitude information. This situation is NOAA standard and rarely practiced!

Comment To Question No. A07 Survey Number: 0848

Unique information for the approach being flown can be found anywhere on the approach plate. This data should be in a standardized location.

Comment To Question No. A07 Survey Number: 0849

Missed approach.

Comment To Question No. A07 Survey Number: 0850

Freq. need to be on all charts. Easier for single pilot operation.

Comment To Question No. A07 Survey Number: 0854

Runway slope when excessive should be more dominantly displayed.

Appendix D

Comment To Question No. A07 Survey Number: 0856

Some information pertinent to the approach is difficult to find. While most of the information applicable to the approach is arranged in a logical sequence, other information/comments needed to make a safe approach is haphazardly placed on the plate, e.g., specific circling information, obstacle clearance, etc.

Comment To Question No. A07 Survey Number: 0861

"Pilot activated Lighting" notice on Jeppesen charts are located in only one place. They should be on each approach chart.

Comment To Question No. A07 Survey Number: 0861

Radio frequency appropriate to communicate with ATC at a closed facility during IFR operations.

Comment To Question No. A07 Survey Number: 0862

On Jeppesen charts when the tower does not operate continuously they need to show the times of operation, I don't need to dig through a dozen other books to look for information. DoD approach plates need recommend rate of descents for glide slope on them as Jeppesen has.

Comment To Question No. A07 Survey Number: 0866

Key elements for approaches are sometimes located randomly throughout chart.

Comment To Question No. A07 Survey Number: 0872

Runway information & frequency information should be on each chart.

Comment To Question No. A07 Survey Number: 0880

ESA within 100 NM. - More frequencies would be helpful.

Comment To Question No. A07 Survey Number: 0883

Yes, when CLNC DEL. freq. is involved. Jeppesen hides it.

Comment To Question No. A07 Survey Number: 0884

In DoD charts radar approach (PAR/ASR) information not always displayed in "minimums" block of terminal approach plate. Must sometimes be looked up elsewhere.

Appendix D

Comment To Question No. A07 Survey Number: 0888

The special instructions/cautions need to be put in one standardized location, and made more prominent.

Comment To Question No. A07 Survey Number: 0893

Place radar mins. (all) on approach plate.

Comment To Question No. A07 Survey Number: 0896

Obstacles - Too cluttered.

Comment To Question No. A07 Survey Number: 0898

Difficult to locate information: altimeter transition altitude, F.L. information should be in standard location on first (or all) approach plate(s); this includes foreign airports.

Comment To Question No. A07 Survey Number: 0901

Emerg. safe altitude not listed on all Prec. approaches.

Comment To Question No. A07 Survey Number: 0902

Approach frequencies on Jeppesen charts.

Comment To Question No. A07 Survey Number: 0905

Print clearance delivery freq. on heading of all pages.

Comment To Question No. A07 Survey Number: 0909

Special notes - may be anywhere on plate.

Comment To Question No. A07 Survey Number: 0912

MSA location is not consistently displayed on approach plates.

Comment To Question No. A07 Survey Number: 0917

Runway lengths - Put on each approach chart and on the separate taxi chart.

Appendix D

Comment To Question No. A07 Survey Number: 0918

I feel that DoD approach plates need a better depiction fo runway diagrams. Many fields have the "blow-up" but some don't.

Comment To Question No. A07 Survey Number: 0927

When PAR's are available the Mins. are shown on the plates. Why aren't ASR Mins. shown?

Comment To Question No. A07 Survey Number: 0931

Sometimes there are notes such as "radar required for category E Aircraft" in small print at notes section at bottom - often missed during review.

Comment To Question No. A07 Survey Number: 0938

Transition levels/altitudes in international approaches. Cautions or other extra information (i.e., circling instructions) are often bunched up with other information on IAP plate. Best to locate in top right.

Comment To Question No. A07 Survey Number: 0939

Non-standard take off & alternate information should be presented with associated airport (perhaps, on airport diagram page).

Comment To Question No. A07 Survey Number: 0945

Many IAPs are so cluttered, it is difficult to determine final approach courses, FAFs & MDAs.

Comment To Question No. A07 Survey Number: 0950

Lights & light symbols; Ht. above touchdown/threshold; difficult to find DH & MDA when approach utilizes more than one facility (e.g., VOR-VOR/DME) because of separation spacing.

Comment To Question No. A07 Survey Number: 0952

Radar approach minimums.

Comment To Question No. A07 Survey Number: 0964

When a separate DME station is used in conjunction with an ILS approach, a "caution" should be made very clear to the user to insure the proper DME station is monitored.

Appendix D

Comment To Question No. A07 Survey Number: 0966

Nav. frequencies should be displayed in a table format also.

Comment To Question No. A07 Survey Number: 0970

Transition altitude/level are not consistently positioned on the approach plates.

Comment To Question No. A07 Survey Number: 0985

DME channels which are paired with an ILS freq. are too innocuously depicted; especially if your ILS receiver does not receive DME which must be tuned through the TACAN receiver... For standardization and better depiction, it should be depicted similar to VOR/DME freq. symbology - as well as easier recognition.

Comment To Question No. A07 Survey Number: 0991

DoD flip products are too many, and in too many formats.

Comment To Question No. A07 Survey Number: 0999

Excessive clutter around IAF depiction on DoD plates. IAF may not need to be completely described on both views. A symbol such as FAF may help.

Comment To Question No. A07 Survey Number: 1002

IAF's and FAF's could be easier to find. Sometimes they blend in with the ARCS and feeder fixes.

Comment To Question No. A07 Survey Number: 1004

The asterisk items -extra comments- should have a separate block instead of being put in different locations on every chart.

Comment To Question No. A07 Survey Number: 1010

The overall flow of chart information is excellent; however, the "planview" listed altitudes at times can be very confusing because of the stepdown clutter. The approach "Minimums" should be before the missed approach sequence in the missed approach box; the holding fix (if req'd) should be displayed instead of some remote part of the plate.

Comment To Question No. A07 Survey Number: 1017

Footnotes & Flagnotes are sometimes hard to locate and interpret.

Appendix D

Comment To Question No. A07 Survey Number: 1026

Circling restrictions and/or missed approach procedures are sometimes difficult to locate.

Comment To Question No. A07 Survey Number: 1028

The location of our approach plate holder is too far from instruments to be effective during crosscheck - a recent incident with DoD VOR/DME 25R approach plate Frankfurt there was a course change after VOR but the course was in with other information which was crowded & for a last minute change crew did not see course & went to wrong runway; recommend either highlight course change or move other information away.

Comment To Question No. A07 Survey Number: 1032

DoD plates are not consistent in location of min. safe altitude information.

Comment To Question No. A07 Survey Number: 1034

Not all airfield have a detailed airfield diagram page.

Comment To Question No. A07 Survey Number: 1035

Warning and notes often are missed.

Comment To Question No. A07 Survey Number: 1036

Changes to D.H. or MDA due to "Control Zone not in effect" or "Altimeter setting" should be listed in the minimum section so you don't have to go looking for it.

Comment To Question No. A07 Survey Number: 1037

Off airway terrain heights - i.e., Boise ID from SE.

Comment To Question No. A07 Survey Number: 1038

Freq. should always be listed in order of intended use, and found in the same location (i.e., ATIS, APP, TWR, GND).

Appendix E

Comment To Question No. B08 Survey Number: 0044

Approach charts and aerodrome sketches are often cluttered with small obstructions.

Comment To Question No. B08 Survey Number: 0098

Additional obstructions, roads, water, & RR need to be depicted; although, only in a lighter background type shading.

Comment To Question No. B08 Survey Number: 0503

How about showing obstacle clearances in grey tone instead of black in order to avoid so much clutter.

Comment To Question No. B08 Survey Number: 0726

Delete some of the lower obstructions depicted on the horizontal view.

Comment To Question No. B08 Survey Number: 0743

There are too many terrain/obstacle symbols depicted, but they do NOT SHOW terrain FEATURES (i.e., contours) and shapes with relation to the approach corridor and airport.

Comment To Question No. B08 Survey Number: 0827

There are too many terrain and obstruction features on the front of the approach plate and not enough on the overhead view on the back side of the first plate--perhaps even contour lines would be helpful.

Comment To Question No. B08 Survey Number: 0938

Sometimes there are too many obstacles depicted. (i.e., Vol-2 Pacific, Aust. Antarctica p.210 VORTAC/ILS Rwy 36 NAHA, Japan) way too many obstacles shown in one tiny area.

Comment To Question No. B09 Survey Number: 0012

Rate of climb information displayed on SID's and MAP's does not translate to performance data charts of DoD aircraft. There are several problems with this and related obstacle clearance information to the extent that in many instances one cannot determine aircraft capabilities. This area requires major revision!

Appendix E

Comment To Question No. B09 Survey Number: 0024

Local frequency information: include RCO freq. for FSS or Center to facilitate closing IFR flight plan at uncontrolled airports.

Comment To Question No. B09 Survey Number: 0124

Old Jepp format better than now.

Comment To Question No. B09 Survey Number: 0187

More terrain information on charts is needed.

Comment To Question No. B09 Survey Number: 0256

In mountainous areas it would be nice to have some kind of terrain features depicted. At present, the only way of determining the terrain underlying an I.A.P., is from VFR sectional chart.

Comment To Question No. B09 Survey Number: 0258

Terrain - higher terrain should be shown better. I use VFR charts to get idea of whats around the airport.

Comment To Question No. B09 Survey Number: 0322

Not enough obstacle info. on Jeppesen Charts.

Comment To Question No. B09 Survey Number: 0497

Sometimes you cannot tell the difference between a mountain and a tower.

Comment To Question No. B09 Survey Number: 0665

Terrain features should be drawn out and depicted (lightly) just like sectional chart. So many of our approaches are visual or contact approaches that start as an instrument approach.

Comment To Question No. B09 Survey Number: 0688

Would like to see minimum safe altitudes throughout USA done on U.S. Hi Charts as Jepp. does on overseas charts (i.e., LIGHT COLORED BACKGROUND NUMBERS IN LARGE BLOCKS).

Appendix E

Comment To Question No. B09 Survey Number: 0769

I believe that standardization of climb requirement in % gradient and display of that information for each runway (including intersection T/O's) and go-arounds is important! And for SID's where climb performance is relevant, much of this data is unavailable to pilots... (i.e., look at the airport obstruction charts which are for "engineering draft table" use). We need the end result data. Some close-in obstacles less than 2.5% gradient are not presented to us even though our authorized climb gradients may be as low as 1.6% net, i.e., if we are not aware of those obstacles, we may not apply an obstacle limit to our T/O.

Comment To Question No. B09 Survey Number: 0775

Highlight controlling obstacles that dictate min. & emerg. alt's.

Comment To Question No. B09 Survey Number: 0780

Quite often the approach procedure schematic is almost blotted out by the representation of towers and other obstructions. If the towers could be represented in a lighter shade, it would make reviewing the approach plate easier.

Comment To Question No. B09 Survey Number: 0781

Make all missed approach instructions simple and to the point. All SID's should show the controlling obstacle for climb outs. Some SID's i.e., Navy, do not show obstacles. When flying the C-5 our max gross weights are dependent on obstacle clearance. If no obstacles are depicted we must use higher climb gradients which reduces our max gross weight for take off. Other DoD SIDs list obstacles which really are no factor for anyone! A total review of obstacles should be done with inputs from all branches of service and civilian air transport aircraft (operators) involved!

Comment To Question No. B09 Survey Number: 0830

NOAA charts need more terrain/obstruction similar to Jeppesen charts.

Comment To Question No. B09 Survey Number: 0861

On the descent profile illustrate the terrain and obstructions appropriate to the course.

Comment To Question No. B09 Survey Number: 0865

Terrain could be better visualized especially in the area of a letdown fix. You are sometimes asked to go below a specified altitude but the pilot has no way, by using the instrument chart, to tell what, if any, obstruction is causing altitude problems. Only controllers have depicted MVA's available to them, and MVA's may be lower than chart altitudes. Don't trust human judgement.

Appendix E

Comment To Question No. B09 Survey Number: 0938

DOD airfield diagrams should be like Jeppesen chart-types with more terrain/obstruction depicted. Japanese Armed Forces approach plates are also great examples for U.S. approach plate makers! They have a lot of good terrain/ground references depicted on the plates.

Comment To Question No. B09 Survey Number: 1024

The overhead view should identify obstruction (i.e., mountains, towers, etc.) existing outside the scaled area of the diagram near the edge for quick reference.

Comment To Question No. B09 Survey Number: 1028

DoD doesn't show all obstacles for scale of approach plate as Jeppesen does which would be helpful for emergency maneuvering.

Comment To Question No. B09 Survey Number: 1030

As a military helicopter pilot, I fly over 90% of my time VFR, low level. We don't have new and fancy electronic gear, and navigate with 1/250,000 scale charts. My opinions on these questions are naturally biased toward the helicopter world. There is a tendency for controllers to make strange requests of helicopter pilots (slow down, speed up, stop, break out left/right, circle over here, etc.) when we do practice instruments, probably because of our maneuverability. Therefore, I need data on topography and obstacles at an airfield.

Comment To Question No. B09 Survey Number: 1034

Low altitude charts and approach plates should include as much terrain information as possible without cluttering the presentation of information. This would enhance visual position awareness and terrain avoidance. The DoD terminal area charts have an excellent combination of low altitude airway and terrain on one publication. I recommend that we expand the inventory.

Comment To Question No. B10 Survey Number: 0042

Put min. sector/safe on the chart - then the tallest obstacle and then get all that other stuff off the chart. Get rid of radial/arc mandatory altitudes! We use lead points! Quit trying to trick us. Don't call an approach a VOR if it requires a TACAN to identify a fix or vice versa. Who cares what's required on final if you can't get there.

Comment To Question No. B10 Survey Number: 0047

Show highest obstacle in each quadrant.

Appendix E

Comment To Question No. B10 Survey Number: 0090

The highest terrain/obstacle should be noted on each approach plate (NOAA). Approach plate format must be standardized!

Comment To Question No. B10 Survey Number: 0422

I feel that the highest obstruction should be displayed within the area displayed on the approach chart, much like the MSA is displayed.

Comment To Question No. B10 Survey Number: 0630

Too many high terrain points on some charts and not enough on others. Should publish highest point in each quadrant.

Comment To Question No. B10 Survey Number: 0693

Obstruction could be listed by height #1 thru whatever. All obstructions could be in a separate box beginning with the first encountered obstruction on the approach to the last, on the missed approach.

Comment To Question No. B10 Survey Number: 0754

The terrain features should be included in subdued type like on the Canadian charts. I believe only having one obstruction noted on the chart would lead a pilot to thinking only one existed, when in fact there could be several. Presently the lack of terrain information is one of the weakest portions of the approach charts .

Comment To Question No. B10 Survey Number: 0848

DoD approach plates should identify the highest obstruction with an " " like the Jeppesen plates.

Comment To Question No. B10 Survey Number: 0985

The Jeppesen highest obstruction is even better, showing always where, how high, and what the obstruction's are.

Comment To Question No. B10 Survey Number: 1033

Minimum vectoring altitudes would help.

Comment To Question No. B11 Survey Number: 0014

Why not print approach charts using color to depict obstacles etc.? The cost would be higher but safety would be greatly enhanced.

Appendix E

Comment To Question No. B11 Survey Number: 0092

I have seen enroute charts now incorporating terrain features and found them to be very helpful when in the low level environment and not (always) going back and forth between enroute and ONC charts when climbing up to a minimum safe altitude due to weather or maintenance problems with the aircraft.

Comment To Question No. B11 Survey Number: 0247

I believe obstacle clearance is the hardest to discern from approach charts. It's difficult to tell from info. on the chart with bearing/DME where you are and if you're safe. Less cluttering and more info. on obstacle clearance should be a priority.

Comment To Question No. B11 Survey Number: 0249

Airports in mountainous terrain should have terrain obstacles printed in various shades of green relief style to depict nearby mountains on each approach plate.

Comment To Question No. B11 Survey Number: 0262

All approach charts should display "any significant terrain" in more detail. A small paragraph listing rapidly rising terrain is insufficient. Especially when strange field operations or off line operations are encountered, in less than reasonable weather.

Comment To Question No. B11 Survey Number: 0484

DoD enroute charts need terrain depictions. Some charts are so cluttered, they're good for preflight planning but useless inflight.

Comment To Question No. B11 Survey Number: 0594

I feel whichever way terrain obstructions (prominent) may be depicted on Jepp's, they should be standardized! There should also be an increase in terrain features depiction. Most "IMPORTANT" standardize.

Comment To Question No. B11 Survey Number: 0607

Couldn't we have some type of contour display on approach charts rather than the maximum height tops as is now displayed.

Comment To Question No. B11 Survey Number: 0667

Jeppesen removed most topography around 12 years ago from all approach charts. This I'm sure, was very cost effective but increased the difficulty from the IFR to VFR transition during the most critical phase of an approach.

Appendix E

Comment To Question No. B11 Survey Number: 0679

Terrain and obstruction - How about different colors?

Comment To Question No. B11 Survey Number: 0682

British aero charts have symbology, info + colored terrain relief which, if combined with U.S. formats would be invaluable. The result could be quite fantastic.

Comment To Question No. B11 Survey Number: 0727

Terrain chart w/min. vector altitude, should be available to pilot.

Comment To Question No. B11 Survey Number: 0792

Simply due to clutter, if a 500 ft. high tower catches the eye before a 2000 ft. high mountain, we all miss the point.

Comment To Question No. B11 Survey Number: 0800

I would like to see more terrain features displayed.

Comment To Question No. B11 Survey Number: 0856

Approach plates should display prominent topographical features where appropriate. Some do and aids in the visual.

Comment To Question No. B11 Survey Number: 0888

To enhance obstruction awareness, publish the number of the TPC (tactical pilotage chart) that and airfield appears on. Make them readily available for pilots during planning.

Comment To Question No. B11 Survey Number: 0985

Opinions differ here, but I prefer Jeppesen's more complete terrain & obstacle depiction. The approach plate is almost always used whether the field is IFR or not and the extra terrain information certainly helps.

Comment To Question No. B12 Survey Number: 0222

Who is to say what the "most prominent" terrain feature is; should allow the cartographers to depict the area as simply, yet clearly, as they can.

Appendix E

Comment To Question No. B12 Survey Number: 0371

I feel that all standard instrument departures should have the minimum safe and emergency safe altitudes displayed.

Comment To Question No. B12 Survey Number: 0597

Topographical information needs to be on approach charts. Jepp. removed populated areas from the plan view several years ago and it is sorely missed. This information aids the pilot on VFR days with limited visibilities. Definitely no more terrain and obstruction information should be removed from approach charts. If anything, such information should be added.

Comment To Question No. B12 Survey Number: 0598

I do miss city and river details, and would like to see general sector altitudes displayed as in remote area charts.

Comment To Question No. B12 Survey Number: 0621

Jeppesen used to show topographical details on the plan view which was a great help in making visual approaches to unfamiliar airports. Since the airline pilots (who rarely go to unfamiliar airports) didn't need these details - they were removed from the charts.

Comment To Question No. B12 Survey Number: 0634

I would like to see, faintly, enough terrain & topo. information shown to be able to know what I might be dealing with in a particular segment; city, mountains, woods, lakes, main highway, etc.

Comment To Question No. B12 Survey Number: 0726

Include terrain features prominent in helping to identify the location of the airport.

Comment To Question No. B12 Survey Number: 0756

The only real shortfall, in my opinion, of DoD approach plates, SIDs, STARS & enroute charts is the lack of terrain information given and the ease of interpreting the terrain information that is given. The ultimate goal, I think, is to be able to look at any chart or plate (knowing your position off applicable Navaids) and immediately tell how low you could be at that point before you hit the ground or some obstacle. I don't have any specific answers, but I think light color coding for terrain and water would help tremendously without adding to clutter. It's really difficult to tell where the mountains are in relation to your aircraft when you're in the weather descending into somewhere like Seattle or LA. The general consensus of pilots I've talked to prefer Jeppesen charts as far as terrain/obstacle information goes.

Appendix E

Comment To Question No. B12 Survey Number: 0775

Topographic overlays similar to Jeppesen would benefit immensely.

Comment To Question No. B12 Survey Number: 0784

Terrain altitudes as on area charts are a great help.

Comment To Question No. B12 Survey Number: 0795

Cities should also be shown.

Comment To Question No. B12 Survey Number: 0810

Terrain and obstacle information can be very important during non-precision and circling approaches, especially single pilot.

Comment To Question No. B12 Survey Number: 0843

City buildings should be displayed where take off or landing will travel over these areas.

Comment To Question No. B12 Survey Number: 0862

A Sectional type map should be used on charts.

Comment To Question No. B12 Survey Number: 1005

Anything that may aid in runway acquisition should be on the approach plate.

Comment To Question No. B12 Survey Number: 1014

More visual cues needed along approach path.

Appendix F

Comment To Question No. C13 Survey Number: 0015

Delete runway depiction on every approach. Have one page dedicated to the field/runway environment per airfield.

Comment To Question No. C13 Survey Number: 0102

If implemented, would be a good idea.

Comment To Question No. C13 Survey Number: 0248

This would be very helpful.

Comment To Question No. C13 Survey Number: 0252

On airport with numerous approaches - maybe only the ILS charts.

Comment To Question No. C13 Survey Number: 0264

This would add to the number of charts we would have in the manuals, 1 runway page is enough.

Comment To Question No. C13 Survey Number: 0575

I find that having the airport diagram on each plate extremely helpful.

Comment To Question No. C13 Survey Number: 0712

Usable Runway Length on both Ldg. and T.O. should be on every approach chart with regards to the obstruction clearance plain, especially in the departure phase.

Comment To Question No. C13 Survey Number: 0775

Put the legend for runway lighting back in DoD approach plates. Put min. & emerg. altitudes on SID's!

Comment To Question No. C13 Survey Number: 0866

While this may appear to "add more clutter", it could be done effectively & is important.

Comment To Question No. C13 Survey Number: 0882

I would like to see runway length added to each approach chart for a particular runway.

Appendix F

Comment To Question No. C13 Survey Number: 0898

Yes, but how to do it without cluttering the page even more?

Comment To Question No. C13 Survey Number: 0904

All information pertaining to the airport - Comm. freqs. ATIS, runway lighting/length/width & airport plan. (all info. not pertaining to any approach procedure) should be on a separate chart.

Comment To Question No. C13 Survey Number: 1004

Just the significant information to each approach should be put on an approach chart. Also make sure the lighting symbols are explained somewhere in the book.

Comment To Question No. C13 Survey Number: 1014

Would make too much clutter but would be nice to have if space was available.

Comment To Question No. C13 Survey Number: 1028

This is one feature DoD has that Jeppesen doesn't which is extremely helpful.

Comment To Question No. C14 Survey Number: 0047

Show ATIS, Approach, TWR, GRD Freq. on approach charts, show only dep. freq. on all SID's - show only approach freq. on all STAR's.

Comment To Question No. C14 Survey Number: 0248

Departure & Arrival ATIS, and CLNC freq's on each chart would be very helpful. I believe there are often too many appch. & dep. freq's to include. The freq. section would become too congested. Another argument for not including appch. & dep. freq's is that TWR or ARTCC will always hand-off.

Comment To Question No. C14 Survey Number: 0256

Jeppesen currently displays all communication frequencies in the same location on each chart.

Comment To Question No. C14 Survey Number: 0264

This would help the hunt for a freq. if they are on all charts.

Appendix F

Comment To Question No. C14 Survey Number: 0265

Revisions are a problem if they print all frequencies on all charts.

Comment To Question No. C14 Survey Number: 0688

Agree with this idea strongly. Even TWR and GRD. freq. are handy on STAR's and SID'S. "See 1st app. Chart for Freq." on Jepp. Charts is worthless.

Comment To Question No. C14 Survey Number: 0726

I would like to see arrival ATIS & Appr. Freqs. put on STAR's, & increased use of departure freqs. on SID's.

Comment To Question No. C14 Survey Number: 0730

If the frequencies were on the departure plates in the following sequence it would be very helpful; ATIS, Del, Grd, Twr, & Dep.

Comment To Question No. C14 Survey Number: 0731

ATIS freqs. should be on arrival charts.

Comment To Question No. C14 Survey Number: 0742

Too much time is spent shuffling plates around trying to find frequencies. Particularly that clearance freq. (on airport diagram only). That's ridiculous!

Comment To Question No. C14 Survey Number: 0866

Absolutely - and on SID's & STAR's.

Comment To Question No. C14 Survey Number: 0991

This information should also be on airport diagram pages, no matter what DMAC, St. Louis says.

Comment To Question No. C14 Survey Number: 1028

Another feature which DoD has that eliminates having to pull unnecessary plates.

Comment To Question No. C15 Survey Number: 0255

Localizer Frequency is sometimes hard to spot. I would like to see large bold print for the primary frequency like for an ILS Approach the Loc Frequency would jump out at you.

Appendix F

Comment To Question No. C15

Survey Number: 0866

Yes! and away from plan & profile view. This clutters approach interpretation during approach with information that is set, tuned, & checked (ID) prior to approach.

Comment To Question No. C16

Survey Number: 0039

The use of 6 different publications: 1) Approach chart book. 2) Change Notices. 3) Class 2 Notams. 4) Class 1 Notams. 5) SID's. 6) STAR's is ridiculous. The Jeppesen format, where everything required consists of 2 publications: 1) Approach chart book. 2) Class 1 Notams is far more practicable; and I think that's why most operations use Jeppesen. Also, including departure procedures, alternate minimums and ASR approach procedures together (rather than in separate tables) is far easier to use. I have seen many cases where student pilots were unaware of dep. procs. using the NOAA charts. Jeppesen places the dep. procs. and non-standard alternate minimums right on the approach chart where it is much easier to notice.

Comment To Question No. C16

Survey Number: 0097

Overall, Jeppesen has best format for approach charts. Runway information is difficult to use due to the massive amount of information available, but I still like having the information. Approach mins. are difficult to work with when 2 sets of minima are displayed, dependent on altimeter setting variances. SID's & STAR's are sometimes very difficult to use unless totally prepared, if a late ATC change in SID occurs, it can be very hectic, especially in the East with the complex SID's that they have there. NOS charts are hard to read for me, but, that may be because I don't use them regularly. I have heard about NOS users who have trouble with Jepps. when they first try to use them.

Comment To Question No. C16

Survey Number: 0109

Current Jeppesen format is excellent.

Comment To Question No. C16

Survey Number: 0215

Differences in Coast & Geodetic & Jeppesen - Symbolology problem.

Comment To Question No. C16

Survey Number: 0313

Due to differences in symbolology & approach minimum displays, it is sometimes difficult to transfer to a Jeppesen plate. These factors should be standardized.

Comment To Question No. C16

Survey Number: 0561

Working between the Jepp. format & the NOS format is a virtual impossibility. There are too many dissimilarities. There should definitely be more standardization.

NO-A100 723

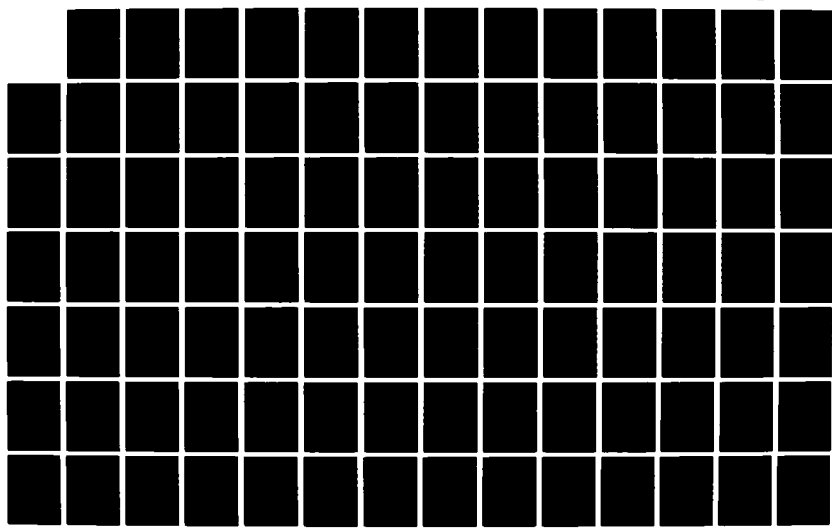
REPORT OF SAFETY SURVEY: HUMAN INTEGRATION OF APPROACH
CHARTS(U) MIDWEST SYSTEMS RESEARCH INC DAYTON OH
W J COX ET AL. MAY 87 DOT/FAR/PM-87/15 F33615-85-C-3623

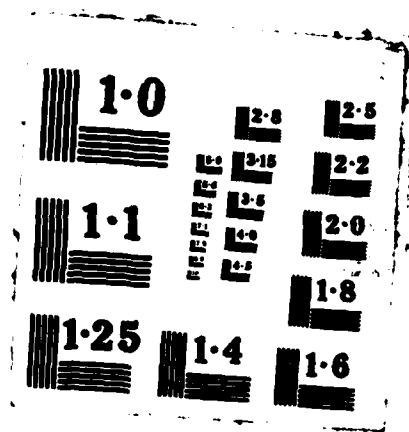
2/3

UNCLASSIFIED

F/G 1/2

NL





Appendix F

Comment To Question No. C16 Survey Number: 0575

We use NOAA for Approach Plates, SID's & STAR's and Jeppesen HI & LOW enroute charts for the United States. We use only Jeppesen for Canada and Latin America. After having done this for one year, we have less difficulties, but we still must be careful in interpretation when changing from one to the other.

Comment To Question No. C16 Survey Number: 0614

The Jeppesen enroute charts are printed/folded wrong for me. Jepp. flip over from left to right, Governments from top to bottom.

Comment To Question No. C16 Survey Number: 0707

I have been using Jeppesen Charts for 25 years and have found them to be superior to any of the government publications I have had the opportunity to use on special occasions. Standardization of material is probably the most important element in reducing workload.

Comment To Question No. C16 Survey Number: 0710

Dark Ages approach information should use Jeppesen format.

Comment To Question No. C16 Survey Number: 0713

Where I have only experience with Jeppesen I am aware of pilots who have problems going from one to another.

Comment To Question No. C16 Survey Number: 0721

All charts should be standardized. I've used both Jepp. and U.S. Gov't. Jepp. portrayal is by far the better of the two.

Comment To Question No. C16 Survey Number: 0740

I find DoD approach plates easier to use because of less clutter but sometimes slim on information.

Comment To Question No. C16 Survey Number: 0866

Yes, between Jepps & DoD/NOAA charts.

Comment To Question No. C16 Survey Number: 0971

All of my current flying is military. The only time we use Jeppesen or NOAA approach plates are when DoD plates are not available.

Appendix F

Comment To Question No. C16 Survey Number: 0899

Standardization would be an excellent idea since a very large number of pilots are trained by the military using DoD charts and then find themselves in civilian flying jobs using the Jeppesen charts. I fly for an airline and with the Air Force Reserves, as do a lot of people, and it would improve safety & efficient if the charts were standardized.

Comment To Question No. C16 Survey Number: 0918

DoD plates in some cases are not in a logical order. i.e., the William B. Hartsfield International Airport is listed under "T" in the supplement and under Atlanta in the approach plate. Why not standarize everything as to city.

Comment To Question No. C16 Survey Number: 0966

Jeppesens are generally easier to use & read.

Comment To Question No. C16 Survey Number: 0981

Since I routinely use the DoD publications I am very familiar with them and feel very confident with their format. Approaches seem to be more standardized than SID's and STAR's but that's what you would expect. Occasionally we will use Jeppesen approaches when there's not a suitable DoD approach and that's when I notice differences that require more mental effort. This is just because of the difference in symbology and format that I'm not accustomed to. More time is spent laboring over the approach procedure just to make sure I haven't misinterpreted something. Other pilots who have routinely flown with Jeppesen pubs. tell me they like them better and feel they give better information. As for me, I'm happy with what I use, I'd just like more standardization when I'm tasked to use approaches from other sources.

Comment To Question No. C16 Survey Number: 0985

The minimums depiction is different enough between Jeppesen & government charts that you can pick off wrong numbers.

Comment To Question No. C16 Survey Number: 1028

As an instructor I teach Jeppesen & DoD differences. Pilots that learned on DoD have difficulty with Jepps mostly because of the profile and MDA/DH VIS blocks - Pilots that use Jepp. initially have no problem adjusting to DoD other than the lack of some information.

Appendix G

Comment To Question No. D17 Survey Number: 0744

Occasionally our company minima are different than Jeppesen which means checking all times to make sure if any changes have occurred.

Comment To Question No. D17 Survey Number: 0814

Because of the numerous types of approaches and the various altitude requirements of each approach, it is sometimes difficult to determine what the MDA or DH should be or the location of these points.

Comment To Question No. D18 Survey Number: 0015

Print too small, not in same place, too complex.

Comment To Question No. D18 Survey Number: 0031

Missed approach instructions should be written so that a pilot either has clear instructions for getting himself back on the approach, or he has a place to go hold - often the holding pattern at the missed approach clearance limit is either unspecified or uncharted (or both).

Comment To Question No. D18 Survey Number: 0034

I have never flown a missed approach as published because the climbout instructions I coordinated were totally different. Is there any way to make the published missed approach and normal climbout instructions more alike?

Comment To Question No. D18 Survey Number: 0068

Terrain and location permitting, missed approach should be a straight ahead climb on course to missed approach altitude then turns to holding fixes to eliminate the need to reference approach charts close to the ground.

Comment To Question No. D18 Survey Number: 0073

Missed approach & G/A procedures (high workload items in normal ops. & excessive for abnormal or emergency) need to be standardized & streamlined.

Comment To Question No. D18 Survey Number: 0084

Missed approach procedures are too complex and would be difficult to follow under heavy workload conditions.

Appendix G

Comment To Question No. D18 Survey Number: 0215

When you have to look down to re-tune or re-dial a frequency or heading this causes a problem. If a straight ahead climb on inbound radials backcourse were standard that would be terrific.

Comment To Question No. D18 Survey Number: 0263

Holding patterns on a missed approach should always be made to a direct entry. I know that there are obstruction & airspace considerations but I think that something could be worked out on most approaches to have a direct entry into the hold.

Comment To Question No. D18 Survey Number: 0687

Missed approach procedures are sometimes too involved. More info. can be given on some, for instance missed approach for Runway 31 MDW has a radial crossing restriction with no DME distance mentioned when one could be listed very easily.

Comment To Question No. D18 Survey Number: 0688

No, because rarely do you have to fly the missed approach as published. If the missed approach procedure is almost never used lets get rid of it.

Comment To Question No. D18 Survey Number: 0691

Do not generate excessive workload, but should be standardized to have window boxes depicting frequencies or have them in missed approach instructions.

Comment To Question No. D18 Survey Number: 0694

There are vast differences in missed approach procedures - what is published and what you are actually instructed to do by ATC - possibly this could be clarified.

Comment To Question No. D18 Survey Number: 0712

In the approach briefing we review the miss procedure only to have the local controller issue something different while we are on the go.

Comment To Question No. D18 Survey Number: 0721

Missed Approach altitudes should be at 500 ft. increments (i.e., 4000', 4500', etc.) not 4021' or other finite altitudes which are unable to be read on current altimetry.

Appendix G

Comment To Question No. D18 Survey Number: 0726

All missed approaches should be simplified.

Comment To Question No. D18 Survey Number: 0729

Published missed approach procedures should be identical (if possible) to those used by ATC. Rarely, if at all, does a pilot fly a published missed approach, which causes an increase in workload by requiring a briefing for a procedure that most likely won't be flown.

Comment To Question No. D18 Survey Number: 0731

Some missed approach procedures seem excessively complicated, particularly in the early stages.

Comment To Question No. D18 Survey Number: 0766

Generally No; but some locations can be difficult.

Comment To Question No. D18 Survey Number: 0771

Missed approach isn't presented in the flow by which you're going to use the procedure.

Comment To Question No. D18 Survey Number: 0800

Missed approaches are quite complex at times, I fear more than necessary.

Comment To Question No. D18 Survey Number: 0810

ATC routinely changes missed approach and departures. Procedures from those shown on charts, often after the pilot has begun those procedures. This can be very difficult particularly in a single pilot operation.

Comment To Question No. D18 Survey Number: 0822

Should be made as simple as possible due to pilot work load. It seems that missed approach instructions are designed to only reduce controller workload.

Comment To Question No. D18 Survey Number: 0855

Missed approach procedures are too confusing and require too great a workload at such a critical time of flight. I would like to see M.A. all go straight out!

Appendix G

Comment To Question No. D18 Survey Number: 0887

Most missed approach procedures have the pilot making unnecessary turns close to the ground, while reconfiguring the aircraft to climb.

Comment To Question No. D18 Survey Number: 0891

Missed approaches are never performed as published whether VFR or IFR at major airports (ATL, ORD, LAX, SFO & DFW). Local ATC has their own miss procedures which are given to the pilot as he misses. These include very restrictive altitude clearances. This sometimes creates cockpit confusion in that the pilot not flying is reviewing the missed approach procedure and ATC is giving another set of instructions on radio. Major airport should have only a communications failure missed approach. Most major airports instruct "Maintain runway heading" and an altitude - contact departure control.

Comment To Question No. D18 Survey Number: 0898

This is my biggest gripe. Some M.A.'s are needlessly complicated. However, despite great emphasis on knowing (memorizing) the M.A., I have NEVER in 20 years of airline flying, been allowed (by ATC/DEPCON) to execute the published missed approach. I realize its value for lost communication, but let's simplify them and their presentation. - Jeppesen issues far too many new sheets for minor changes. Do they own a paper factory? - The MEX CITY 5 R/L plates are grossly confusing and the procedure itself is too complicated.

Comment To Question No. D18 Survey Number: 1013

I have seen some rather complicated missed approach instructions which I felt could have been simplified. During a missed approach, the less complicated the procedures are, the better. Also, the small print used on DoD approach charts for the missed approach instructions can be very difficult to read.

Comment To Question No. D18 Survey Number: 1028

As with all approach plates there are no commas in the missed approach procedures (written) and can be misinterpreted especially under single pilot ops.

Comment To Question No. D19 Survey Number: 0014

Jeppesen arrival charts are separate for each runway and include much approach information. DoD uses one chart for all arrivals and includes little approach information. You must switch charts to fly the approach.

Comment To Question No. D19 Survey Number: 0031

STAR's seem to be for the controller's convenience, not the pilot's. Some of them are complicated, and the pilot has to look at two books (i.e., the CFA book and the IAP book) to get the jet on the ground.

Appendix G

Comment To Question No. D19

Survey Number: 0032

It is the opinion of this Flight dept. that there are entirely too many airports publishing STAR's & SID's, as though they were competing with one another to see who will have the most. We question not only the need for so many arrival & departure procedures but in fact who is being served by them. Are they created with the pilots workload and thus safe operation of the aircraft in mind, or are they created to serve the needs of ATC and/or the FAA. In many cases procedures seem to be established to protect airspace rather than aircraft, without any regard to the economics of shifting an aircraft around the skies that cost large sums of money to operate. When a procedure is questioned, the reply given is "well, this is the way we do it here." It is our fervent wish that more consideration be given to serving the needs of the airman using the system rather than the system serving its own needs, or to phrase it another way--Is the FAA/ATC there to serve the needs of the airman or is the airman there to serve to needs of the FAA/ATC?

Comment To Question No. D19

Survey Number: 0073

NOAA SID/STAR's should be alphabetized by city, not approach name.

Comment To Question No. D19

Survey Number: 0091

There is a need (in my opinion) to indicate on the instrument approach chart the existence of an associated instrument departure or arrival chart.

Comment To Question No. D19

Survey Number: 0108

STAR's need ATIS info. on them.

Comment To Question No. D19

Survey Number: 0271

Standard arrivals and departure should be simple procedures for all airports that have both private and commercial flights.

Comment To Question No. D19

Survey Number: 0304

In some areas Departures Procedures are very complex and may involve 3 to 4 fixes in the first 35 miles. Difficult to look out windows while changing Nav. & Comm. frequencies, monitoring progress and flight profile.

Comment To Question No. D19

Survey Number: 0633

Complicated STARS are a perfect setting for mid-air collisions in VFR Wx. Too much time must be spent with your head in the cockpit flying these arrival routes when you should be looking for other aircraft. This is particularly true of LAX & NY. areas. The potential for mid-air collisions is too great!! We need to be able to look out more, not keep our head in the cockpit.

Appendix G

Comment To Question No. D19 Survey Number: 0648

Profile procedures (Ex. Rwy 24/25) in conjunction with the ILS in use at LAX Airport create an excessive workload that make VFR traffic vigilance/avoidance extremely difficult. This is as much the fault of the unnecessarily complicated stepdown procedures as it is on the two separate formats in which presented.

Comment To Question No. D19 Survey Number: 0656

A competent line pilot, familiar with a variety of high density traffic areas, might still be required to spend too much time with his eyes inside the cockpit, when faced with an unfamiliar approach procedure. High density traffic areas seem to require more complexity in approach (and departure) procedures when, as is clear from the Aeromexico collision, the procedures should be very, very simple.

Comment To Question No. D19 Survey Number: 0708

Some Arrival and Departure Charts have excessive and complex navigation and performance requirements, i.e., PHX departures and LAX arrivals below 10,000'!

Comment To Question No. D19 Survey Number: 0725

The difficulties with some standard arrivals, departures, and missed approach procedures are due to the procedures themselves and not to the way they are displayed on the charts.

Comment To Question No. D19 Survey Number: 0726

STAR's should include depictions or routings to IAF's.

Comment To Question No. D19 Survey Number: 0769

A qualified "Yes". The biggest problem I see is the transition from STAR's (or enroute if no STAR's exist) to approach charts for orientation (i.e., preparedness).

Comment To Question No. D19 Survey Number: 0800

Standard instrument departures are much too complex with crossing altitudes, numerous frequency and heading changes. This is in no way the fault of the approach chart.

Comment To Question No. D19 Survey Number: 0814

The amount of information needed to fly approaches is excessive and when added with radio communication tasks and approach control instructions and frequent changes, workload is burdensome.

Appendix G

Comment To Question No. D19 Survey Number: 0839

Very seldom do we get to fly an arrival or departure without it being changed by ATC. They would be great if everyone used them and stayed with it but if ATC is going to keep changing every two minutes let's all go radar vector.

Comment To Question No. D19 Survey Number: 0977

The biggest problem I've had is approaching airports in congested areas and being cleared to fixes located on several different charts. For example, when flying into McGuire AFB, NJ we are cleared to fixes on either the enroute chart, terminal area charts or instrument approach plate. Looking for the fixes on different charts creates confusion.

Comment To Question No. D19 Survey Number: 0985

It's an extra step - often in a hurry - when ATC surprises you with a STAR you aren't expecting... and it has to be dug out of a completely separate book with its own (unique in the DoD system) indexing format.

Comment To Question No. D20 Survey Number: 0084

SID's are frequently difficult to understand and hardly ever flown to completion.

Comment To Question No. D20 Survey Number: 0246

My "high workload" (and I think also my fellow pilots' workload) is caused by the complexity of SID's in the Metro New York area, especially when departure runways are changed. Generally, procedures are complex enough to require high efforts by a crew member at a time when the safety of flight requires two crewmembers.

Comment To Question No. D20 Survey Number: 0251

Departure & arrival charts often require too many unnecessary turns for short distances (especially in New York area).

Comment To Question No. D20 Survey Number: 0252

Sometimes take up too much airspace & time - especially during low traffic volumes!

Comment To Question No. D20 Survey Number: 0269

Complete and thorough training and instructions are certainly required for accurate and timely execution of DoD or Jepp. Dep. and STAR Charts.

Appendix G

Comment To Question No. D20 Survey Number: 0358

ATC routinely assigns SID's as a part of a clearance. But SID's are actually rarely flown as published.

Comment To Question No. D20 Survey Number: 0646

Specifically, some of the SID's in the NY/NJ area require many more radios or people than most of us have in order to set up before the departure.

Comment To Question No. D20 Survey Number: 0651

Std. instr. departure procedures are rarely followed completely; usually given vectors or altitude changes at discretion of ATC. This contributes to confusion. However, it usually results in more direct routing or earlier climbs. When the USUAL procedure is to deviate from SID, why not change the SID?

Comment To Question No. D20 Survey Number: 0660

LAS: - Published departure from Las Vegas is difficult in that it is confusing and requires constant reference.

Comment To Question No. D20 Survey Number: 0662

Most are excellent. An exception is San Jose 10-3A (Loupe Four). This one is utterly ridiculous! Too much time is spent with heads in cockpit double-checking altitudes and radials, no time can be spent looking out window in a heavy traffic area.

Comment To Question No. D20 Survey Number: 0687

Generally no - some yes, definitely - for instance Teterboro's departures can be very hectic. The metro departures are generally very welcomed at all airports.

Comment To Question No. D20 Survey Number: 0688

Porte Six SID at SFO for example.

Comment To Question No. D20 Survey Number: 0706

Certain SID's, if followed to completion, present an excess workload (i.e., Teterboro, JFK, LGA).

Comment To Question No. D20 Survey Number: 0710

Should be designed to allow for loss of communication problems. Should be followed by ATC. Too much modification makes SID non-standard.

Appendix G

Comment To Question No. D20 Survey Number: 0721

Some SID's are excessively confusing at certain airports due to their complexity, SFO, LAX are prime examples (Denver is a good one). This would be even further aggravated with an emergency during departure.

Comment To Question No. D20 Survey Number: 0744

Lots of times this approaches excessive (i.e., moderate +).

Comment To Question No. D20 Survey Number: 0781

Either fly SID's or not! Better coordination between departure and ATC is needed.

Comment To Question No. D20 Survey Number: 0782

Some departure procedure at selected high density airports (i.e., New York Teterboro, LaGuardia, LAX) do present some level of difficulty for two men crews; more for a single pilot operation. Occasionally too many radials off of different nav. aids.

Comment To Question No. D20 Survey Number: 0788

I have had complicated low level SID's that were used by Departure Control that results in high levels of work load. This distracts from the visual scan for traffic on VFR conditions.

Comment To Question No. D20 Survey Number: 0822

Written in legaleze - should not have to be analized for "what I think they mean."

Comment To Question No. D20 Survey Number: 0827

Some of the East Coast SID's such as at TEB are quite confusing.

Comment To Question No. D20 Survey Number: 0855

SID's and STAR's create too much time in the cockpit, when our attention should be looking outside.

Comment To Question No. D20 Survey Number: 0901

Recommend emerg. safe & min. safe altitudes be included on the SID.

Appendix G

Comment To Question No. D20

Survey Number: 0902

The SID system is no end of trouble. They are too complex and almost never flown as depicted. The SID system requires all attention inside the cockpit on departure - This reducing or eliminating the pilot(s) ability to exercise "see and avoid".

Comment To Question No. D20

Survey Number: 0985

Help to have MIL "SID's" in the book like they are for overseas...and in the Jeppesen's (Mil SID's are individually issued by Base Ops.) Looking at the question some more, SID's do seem to create more confusion overall; they're used much less, depiction/interpretation is often not very intuitive, and there seems to be a lack of standardized format.

Comment To Question No. D20

Survey Number: 1007

If departure procedures are flown as published, it would generate excessive workloads.

Comment To Question No. D21

Survey Number: 0757

In the day of our flight navigational computers, a major change from a SID clearance requires too much "head in the cockpit" time in a jet.

Comment To Question No. D21

Survey Number: 0784

Many areas have a standard departure but clearance always gives something different. Departures should be updated periodically to match the clearance.

Comment To Question No. D21

Survey Number: 0788

I have had cancellations that caused high work loads by assignment to a local VOR fix, etc. not known by non-local-area pilots.

Comment To Question No. D21

Survey Number: 0849

If SID's & STAR's had any relation to dep. & app. handling & to comm. freqs. used, it would reduce sweat.

Comment To Question No. D21

Survey Number: 1007

Standard instrument departure procedures, cancelled during critical phases of flight, only to be followed by another procedure that is more complicated does, indeed, cause excessive workload.

Appendix G

Comment To Question No. D22

Survey Number: 0089

We find many SID's totally unacceptable for the safety of flight. In a jet aircraft the pilot is flying & the co-pilot has his head down switching Nav. frequencies & radials--no one has time to look for VFR Traffic. This is very dangerous. If you have any kind of emergency it is very unlikely that the crew could fly the airplane, handle the problem & fly the SID profile. Denver Stapleton has the best--runway heading to 10,000 for on course vectors--and the crew can watch for traffic. Because approach charts have too much information, we spend too much time sorting it out trying to find what is needed. The Loupe Four Departure at San Jose, CA. is a good example of one of the worst. It is not simple. Both crew members are busy under a normal situation just flying the procedure & no one has time to look for traffic in a very congested area. We constantly run into this problem over & over again day after day, trying to interpret complicated charts compromising safety because no one has time to watch where we are going.

Comment To Question No. D22

Survey Number: 0102

Some SID's have too much written info. on them and you can miss some of the more important info.

Comment To Question No. D22

Survey Number: 0122

The problem with SID routes is that on many occasions they appear to be much more complicated than is necessary. For example the SFO Porte 6 Departure with a Pinedale Transition takes 5 minutes to read and set up. Then one has to re-read it because there is too much to remember. While flying you not sure if you are right so your attention is on the departure and not outside.

Comment To Question No. D22

Survey Number: 0244

Occasional difficulties arise over SID charts which incorporate a routing with a radar vector. Example: Santa Ana, CA 10-3 "Musel Four Departure" (Jepp.). Procedure after the turn to 175 degrees, says hold this course for radar vectors to transition. Intuition & depiction say for the Ventura Transition to go to the SXC R061 and proceed on route. ATC wants you to hold 175 degrees heading even if you cross the SXC radial. (I have talked to them about this.) I think this could cause confusion. Vector procedures should be standardized and made more explicit.

Comment To Question No. D22

Survey Number: 0256

Too much time is required to sort through the information presented. (For the more complicated procedures.)

Comment To Question No. D22

Survey Number: 0681

IFR Departure procedure remarks are often poorly phrased and difficult to understand intent.

Appendix G

Comment To Question No. D22 Survey Number: 0681

Occasionally apparently conflicting information (is detected) when comparing SID procedures and IFR Departure Procedures, e.g., SFO SID's require a minimum climb gradient, but the IFR Dep. Proc. does not.

Comment To Question No. D22 Survey Number: 0691

Confusion isn't quite the right word. In a hurried-up environment, departure procedures are creating excessive workloads on busy pilots. Standardized depart. routes with radar vectors to fixes would certainly help.

Comment To Question No. D22 Survey Number: 0866

Especially when procedures are different for each runway.

Comment To Question No. D22 Survey Number: 0938

Sometimes departure route descriptions on the bottom of DoD SID's don't match up with depicted diagram & cause confusion.

Comment To Question No. D22 Survey Number: 0970

Not confusion, just excessive workload by not having minimum safe/emergency safe altitudes.

Comment To Question No. D22 Survey Number: 0991

On DoD plates, the text is separated from the drawing.

Appendix H

Comment To Question No. E23 Survey Number: 0645

Prefer Jepp. descent profile to NOAA descent profile.

Comment To Question No. E23 Survey Number: 0659

All the abbreviations for approach lights are confusing and not readily found in the Jeps. - never know what to expect when breaking out at minimums.

Comment To Question No. E23 Survey Number: 0765

Symbology has been simplified to save \$. Subdued plan views of MTN/contours/topography could help. Photographic reduction processes of IAPS & flt. ref. documents make DoD NOS charts/books difficult to use.

Comment To Question No. E23 Survey Number: 0827

Terrain symbology could be improved.

Comment To Question No. E24 Survey Number: 0349

Standardization is the key.

Comment To Question No. E24 Survey Number: 0351

Standardization of charts is very desireable. I am used to looking at and interpreting DoD approaches, therefore, I find Jeppesen hard to interpret.

Comment To Question No. E24 Survey Number: 0459

I think pictorial display is easier to interpret than worded discription. The use of color could also be used to display final approach courses and minimums.

Comment To Question No. E24 Survey Number: 0575

Standardization would certainly resolve the information transfer problems.

Appendix H

Comment To Question No. E24

Survey Number: 0710

Government approach charts are a sore point for those of us who years ago had to use them during check rides and written tests. A pilot who starts with them and likes them will defend their use as strongly as a Jeppesen user defends his selection. However, symbology must be the same, data location must be the same, i.e., format. Airports should have similar names. We don't fly to Raleigh County Airport, we fly to Beckly WVA, which is Raleigh County Airport. Packaging is a matter of preference - By doing my revisions I know when data for an airport changes. DoD just sends me a book; yes it's a pain but so is trying to find minimums with inoperative components.

Comment To Question No. E24

Survey Number: 0770

All problems that I've experienced have resulted from the large variations in depiction and symbols used in the different systems. Jeppesen is the worst. To qualify that some, we military pilots are not taught how to interpret any charts except DoD. A shame since MAC regularly uses Jeppesen and charts from other nations (usually in the Jeppesen formats).

Comment To Question No. E24

Survey Number: 0796

All useable data for aircraft operation should be uniform & standardized such as the "T" instrument panel has been done. If a person flies different aircraft to different locations, life will be easier & safer if all charts speak same language.

Comment To Question No. E24

Survey Number: 0798

If symbology is to be standardized - in general, Jeppesen chart symbology is more logical.

Comment To Question No. E24

Survey Number: 0847

The Jeppesen is too cluttered, the NOAA is difficult to use in the book, but you don't have to mess with revisions every other day. Both should be standardized!

Comment To Question No. E24

Survey Number: 0866

Absolutely.

Appendix H

Comment To Question No. E24 Survey Number: 0897

My favorite approach plates are Reno, Nev 18-2, 18-3 (Jeppesen). These tell me much more at a glance than the others. I'm not necessarily saying Jepps are wrong as much as - they don't transfer easily and systematically to me. If you could have a chart for any given airport but only be given 5 or 6 specific bits of information - what would those be? 1) Freq. 2) course 3) DH/MDA 4) IAF altitude 5) highest obstacle 6) MSA. Someone else might have better ideas/priorities. Ask them. I think standardization then training are two important directions. The "human transfer" is the key.

Comment To Question No. E25 Survey Number: 0002

Some approaches, particularly DoD High Altitude, are difficult to read due to (1) approach design, (2) cluttered information, (3) both.

Comment To Question No. E25 Survey Number: 0036

DoD terminal charts should be more like Jeppesen charts - warnings and notes should not be randomly scattered around the charts as they are now.

Comment To Question No. E25 Survey Number: 0081

I think the missed approach information should follow the landing information on approach charts. In as much as most approaches are terminated in a landing I think this would be a more logical layout. Also, with the missed approach information at the bottom of the page rather than buried in the middle, it would be easier to find at a time of high cockpit workload.

Comment To Question No. E25 Survey Number: 0091

Probably a costly proposal, but I think the use of color coding would highlight and simplify interpretation of the approach charts.

Comment To Question No. E25 Survey Number: 0093

On VFR charts it would be helpful if freq. & numbers on VOR radials could be read more easily - suggest darker print.

Comment To Question No. E25 Survey Number: 0111

There is too much junk (useless info.) on most approach plates, ATC controllers seem to have a vast difference in interpretation of SID's, STAR's and approach altitudes. All app. & dep. plates should be required to have standard symbology and placement. I wonder how many pilots have had accidents because of confusion. I am a Chief Flight Instrument Instructor in the Falcon series of jets, it is my observation that most pilots could not identify 10% of the symbols on plates and charts; more over, know what they mean.

Appendix H

Comment To Question No. E25 Survey Number: 0297

For formatting of go-arounds & specific holding instructions, it might be a better idea to have them boxed off in certain corners and make it standardized.

Comment To Question No. E25 Survey Number: 0305

Generally too confusing - with important info. given the same prominence as less important items. It's especially difficult when the pilot is prepared for one approach and, at the last minute, is cleared for a different approach.

Comment To Question No. E25 Survey Number: 0315

It would be great if all types of approach charts were standardized, we use both Jeppesens and DoD and both have their good points. They should be standardized.

Comment To Question No. E25 Survey Number: 0592

Does different color ink cost too much? Green - Blue - Black - on approach plates to better illustrate.

Comment To Question No. E25 Survey Number: 0593

I believe the charts determine to a large extent the difficulty one has in gaining the desired information.

Comment To Question No. E25 Survey Number: 0765

"Standardized" by priority may help or may degrade. Sequencing of data, e.g., freq's, by priority may not be best placement, as a "visual learner" rather than "verbal learner", perspective of plan views is preferable to "double information" of plan and profile views. A range of pilot/artist designed concepts is needed as follow-on to this survey (non-DoD & non-NOAA designer).

Comment To Question No. E25 Survey Number: 0769

Priority only for the quick reference, important information, like "what are the minimums against?", "what is the MSA this sector?" etc; otherwise, presentation should be presented as a chronological flow. I feel this is more of a cockpit management task as the approach charts have this concept incorporated.

Comment To Question No. E25 Survey Number: 0798

Organize & standardize, but what are the criteria for "priority" - lowest minima? Most used? Type? I suggest they be organized by type ILS, LOC, VOR, NDB, ASR.

Appendix H

Comment To Question No. E25 Survey Number: 0825

When briefing for an instrument approach. I usually start at the top of the page and work down. It all fits together until I reach minimums. At that point I must look up to find the missed approach procedure and then up again to find the box depicting the track, intersection and hold. If I go down the chart, I must talk about a missed approach prior to talking about minimums.

Comment To Question No. E25 Survey Number: 0869

Have found that DoD approach books are much better in arrangement than the Jeppesen approach charts. However, we use the Jeppesen only about 10% of time. I would like to see a universal format for all approach plates.

Comment To Question No. E25 Survey Number: 0900

Too much information is too hard to read at night while flying and trying to read the chart. Why not have a standard format for a standard approach and then put anything non-standard in standard remark section, i.e., change TACAN frequency after such and such or (at Plattsburgh AFB) note: you will overfly TACAN 1.3 miles before MAP. TACAN is not MAP.

Comment To Question No. E25 Survey Number: 0947

Standardize: yes. Prioritize: no.

Comment To Question No. E25 Survey Number: 1005

Jeppesen approach plates are difficult to read & require a lot of pre-mission planning.

Comment To Question No. E26 Survey Number: 0004

That's why I use Jeppesen.

Comment To Question No. E26 Survey Number: 0020

The bound format & cheap paper make them difficult to use in the cockpit, but easier to revise. A combination spiral bound/tear out 7 hole punch for loose leaf, left to right format would be easier to use and still be easy to revise.

Comment To Question No. E26 Survey Number: 0022

Charts should be bound so that they can be more easily folded to view only one chart at a time.

Appendix H

Comment To Question No. E26 Survey Number: 0023

I use NOAA charts. I would like to have SID's & STAR's included in the IAP book by airport. The current method of separate books & listing by procedure name is very confusing.

Comment To Question No. E26 Survey Number: 0024

The binding makes it difficult to hold the book open and see all the information without tearing the page out of the book.

Comment To Question No. E26 Survey Number: 0025

Very difficult to hold and use toward the middle of the binder. This causes the binding to block out notes and time.

Comment To Question No. E26 Survey Number: 0027

Depending on which side of the page the approach is printed on, it is often difficult to fit plates under the "clip" on various knee boards. If the pilot is unfortunate & doesn't have a knee-board with a "clip" then the approach plates often do not remain open.

Comment To Question No. E26 Survey Number: 0029

But a third hand helps very much.

Comment To Question No. E26 Survey Number: 0031

Some of the books are getting too thick & they break at the spine with extensive use.

Comment To Question No. E26 Survey Number: 0041

Vital information is at times hidden in corners or buried within a bunch of other, less important, data.

Comment To Question No. E26 Survey Number: 0043

Occasionally difficult to locate a chart promptly.

Comment To Question No. E26 Survey Number: 0055

Approach plates can become bulky in small cockpits, especially when referencing TCNs, etc. Individual pages would be nice.

Appendix H

Comment To Question No. E26 Survey Number: 0063

Sometimes difficult to find missed approach instructions. Altitude restrictions are inconsistent on some approaches and difficulty exists as to where the restriction actually applies. Important notes are difficult to find.

Comment To Question No. E26 Survey Number: 0064

Prefer SID's & STAR's bound in same book.

Comment To Question No. E26 Survey Number: 0071

Government IAP should have another inch of border at the top of the plate to facilitate folding the booklet and having it held by some sort of holding device in the aircraft. Most holding devices cover some of the information on the plate, i.e., communications block. The binding could be replaced by a stapled booklet with better quality paper.

Comment To Question No. E26 Survey Number: 0073

DoD/NOAA charts don't indicate changes (Jepps do).

Comment To Question No. E26 Survey Number: 0076

Near the end of the cycle approach charts that are frequently used fall out of the binder.

Comment To Question No. E26 Survey Number: 0096

Too difficult to determine how many books should be on board to cover entire U.S., and very easy to loose a book and not realize it. Also hard to determine what area a certain state is in (N, NE, E, ?).

Comment To Question No. E26 Survey Number: 0099

DoD approach plate "booklets" are difficult to handle in the cockpit. Jeppesens are easier to use, taking only what you need.

Comment To Question No. E26 Survey Number: 0108

NOAA charts are inferior to Jeppesen's.

Comment To Question No. E26 Survey Number: 0114

Basically the problem is with the delivery of government publications in a timely manner. They are always late!

Appendix H

Comment To Question No. E26 Survey Number: 0126

Make approach charts & aids removable.

Comment To Question No. E26 Survey Number: 0163

Book form difficult to hold or mount for easy reference.

Comment To Question No. E26 Survey Number: 0189

Worked very little with NOS charts - but find cumbersome to clip on control wheel or board for easy viewing during an approach. Many pilots tear charts out.

Comment To Question No. E26 Survey Number: 0215

The old gum bound method for Coast & Geodetic plates is not a good way to store plates.

Comment To Question No. E26 Survey Number: 0217

Binding makes top of charts hard to read.

Comment To Question No. E26 Survey Number: 0218

Personally I prefer Jeppesen to NOAA; however, the time and effort required to keep Jepp's updated and current, including annual check list, is more than I have time for.

Comment To Question No. E26 Survey Number: 0222

When a page comes out of the NOS book it becomes easy to misplace.

Comment To Question No. E26 Survey Number: 0223

Gov't charts fall apart.

Comment To Question No. E26 Survey Number: 0224

DoD should take a lesson from Jeppesen and package airports/bases by state. The DoD books were always difficult to keep open to the appropriate page without using a large clip; therefore individual pages are easiest if not confined to a fighter-sized cockpit. Larger diagrams of the airport layout could enhance ground safety also.

Appendix H

Comment To Question No. E26 Survey Number: 0225

The problem with government approach charts is that when frequently used charts become dislodged from their binding, they cannot be readily reattached. A major flaw in all approach charts that I have seen is presentation of airport name. If, for example, a Jeppesen user is shooting an approach to an airport in a city with two airports, each with an ILS 6 approach, the chances of his choosing the wrong chart are not slight. The NOAA chart user is faced with such small print that reading it may distract his attention in a critical phase of flight. The main improvement I would like to see in Jepps is a nav. frequency list starting with a bold face primary Crs guidance and in lighter type supplementals with missed approach frequencies indented.

Comment To Question No. E26 Survey Number: 0227

Booklets are too bulky for use in a tactical cockpit.

Comment To Question No. E26 Survey Number: 0232

Book form is cumbersome.

Comment To Question No. E26 Survey Number: 0246

As a Jepp user, I find it awkward to use Coast & Geodetic (now the NOAA) since different information items are in different "Booklets" - e.g., alternate airport with minimum.

Comment To Question No. E26 Survey Number: 0252

Individual charts are easier to hold on a control column clip than a book!

Comment To Question No. E26 Survey Number: 0254

We investigated the possibility of using NOAA charts in our Lear Jet, but found there wasn't enough cockpit room to store all the publications that we needed to replace our Jeppesen service.

Comment To Question No. E26 Survey Number: 0256

Approach charts listed alphabetically by airport name instead of city name; that alone makes trying to find some charts impossible. Also, the need to look up non-STD takeoff or landing minimums in a separate binder increases workload significantly.

Comment To Question No. E26 Survey Number: 0258

Well, yes, ever have one go closed on you while making an approach?

Appendix H

Comment To Question No. E26 Survey Number: 0259

Hard to hold book on lap.

Comment To Question No. E26 Survey Number: 0260

I do not use them now, but when I did they took up too much space. Too many books.

Comment To Question No. E26 Survey Number: 0262

Cumbersome, difficult to find & use as well as incomplete in reference to arrival procedures.

Comment To Question No. E26 Survey Number: 0268

The top-hinged binding is difficult to handle, especially in single-pilot operations.

Comment To Question No. E26 Survey Number: 0276

The way they are used and the frequency of use of most of the charts, the binding of the charts do not hold up.

Comment To Question No. E26 Survey Number: 0308

Some books are too bulky, making the "set-up" difficult, especially if the approach is in the back or front of the book.

Comment To Question No. E26 Survey Number: 0309

Should be located by city.

Comment To Question No. E26 Survey Number: 0318

All the information for a particular airport should be in one publication.

Comment To Question No. E26 Survey Number: 0333

Government charts are too bulky - and cannot be placed on a chart holder in front of the flying pilot without ripping out individual pages.

Comment To Question No. E26 Survey Number: 0334

Difficult to store in an orderly manner.

Appendix H

Comment To Question No. E26 Survey Number: 0381

Too bulky in book form. Hard to keep in order when removed.

Comment To Question No. E26 Survey Number: 0382

The binding will weaken & pages are lost - cumbersome books.

Comment To Question No. E26 Survey Number: 0414

Standardize w/other approach charts.

Comment To Question No. E26 Survey Number: 0424

Some approach books are so thick that they cannot be held by standard appch. plate holders or knee pad. They are continually falling out.

Comment To Question No. E26 Survey Number: 0425

The clamps that are used often slip and are not large enough to clamp the large volumes of approach charts.

Comment To Question No. E26 Survey Number: 0427

Difficult to hold charts in clips for easier reference.

Comment To Question No. E26 Survey Number: 0439

The book of charts are difficult to open and keep open.

Comment To Question No. E26 Survey Number: 0445

Occasionally, approach books are too thick.

Comment To Question No. E26 Survey Number: 0462

Hard to find correct book.

Comment To Question No. E26 Survey Number: 0463

Single page up-dates.

Appendix H

Comment To Question No. E26 Survey Number: 0466

Difficult to see the whole plate when it is located in middle of book. Also I would like the airports to be listed alphabetically by city, not airport name.

Comment To Question No. E26 Survey Number: 0470

At times it's hard to keep them open to the correct approach chart. It would be nice to be able to pull out just the chart that is needed to reduce the amount of material being handled.

Comment To Question No. E26 Survey Number: 0476

DOD charts will not stay open or lay flat.

Comment To Question No. E26 Survey Number: 0483

The DoD books are far more difficult to handle then a single page (i.e., Jepp.)

Comment To Question No. E26 Survey Number: 0488

Area charts are not alphabetized with new/changed approach plates.

Comment To Question No. E26 Survey Number: 0492

The binder should be more flexible so the book will lay open.

Comment To Question No. E26 Survey Number: 0493

DoD, impossible to locate in a hurry, you must tear out pages or make copies, to use effectively.

Comment To Question No. E26 Survey Number: 0509

DoD versus Jeppesen formats (should be standardized).

Comment To Question No. E26 Survey Number: 0519

A. Jepp. approach plates can be taken out of the binder & put on a holder that's easy to see during the approach. B. Jepp. plates are updated more often.

Comment To Question No. E26 Survey Number: 0550

Gov't Charts are too cluttered for their size.

Appendix H

Comment To Question No. E26 Survey Number: 0561

I prefer the Jepp. layout, organization & order. What I don't like are those REVISIONS! I prefer the NOS packaging & revision method much better. I would like to see some sort of package put together with the Jepp. plates in NOS packaging form.

Comment To Question No. E26 Survey Number: 0568

Inconvenient to use in cockpit.

Comment To Question No. E26 Survey Number: 0575

The books (NOAA) that exceed 1/2" in thickness, tend to be difficult to manage. I would prefer more books to thicker ones. The only reason we went to the NOAA charts, was to avoid the single page revision method used by Jeppesen. I would really like to see NOAA convert to a binder format to allow selection of one chart at a time, but retain their revision method.

Comment To Question No. E26 Survey Number: 0581

There should be more blank space on the end of the page which attaches to the binding so that the whole chart can be viewed more easily with the book folded back around.

Comment To Question No. E26 Survey Number: 0582

The bound books are too cumbersome for efficient single pilot operations.

Comment To Question No. E26 Survey Number: 0584

Airports are difficult to find and SIDS/STARS are never locatable with NOAA charts.

Comment To Question No. E26 Survey Number: 0589

Hard to find airports under present labeling, difficult to keep charts open during approach.

Comment To Question No. E26 Survey Number: 0590

Approach plates are cumbersome and often fall off knee or board unless they are strapped down (pilot often rip out the most frequently used plates, which sometimes leads to the use of outdated plates).

Appendix H

Comment To Question No. E26 Survey Number: 0603

NOAA books are lousy to handle in the cockpit - don't stay open.

Comment To Question No. E26 Survey Number: 0605

I feel that change notices are/can be too demanding to try to find the appropriate approach. Especially, if one has to divert to another airport that isn't anticipated or planned for. The pilot now has to spend valuable time looking through the change notices book for any changes.

Comment To Question No. E26 Survey Number: 0609

Because you have to always refer to other sections to get the complete picture, these sections being in other books.

Comment To Question No. E26 Survey Number: 0612

The NOAA Charts are of inferior quality of paper and printing.

Comment To Question No. E26 Survey Number: 0615

Takeoff/Alternate procedures should be integrated into approach charts for each airport.

Comment To Question No. E26 Survey Number: 0617

Finding the airport name vs. its name by DoD.

Comment To Question No. E26 Survey Number: 0619

Easy to revise NOAA Charts. But very difficult to hold in cockpit.

Comment To Question No. E26 Survey Number: 0635

Will not lay flat. Tend to flip if not held.

Comment To Question No. E26 Survey Number: 0640

Some freqs. are placed in supplement rather than on a chart page where it is relevant.

Comment To Question No. E26 Survey Number: 0641

Difficult to hold open to desired page. Pages often torn out to facilitate use, and lost.

Appendix H

Comment To Question No. E26 Survey Number: 0642

One of the nice bene is the revision--that's why our company (I'm the Director of Ops.) switched from Jepps to NOAA; no lost folders, no stacks of revisions, no unhappy pilots and no Sect. doing revisions. We use 7 sets of charts.

Comment To Question No. E26 Survey Number: 0645

Would like to see (NOAA) approach booklets "drilled" with 3-holes in top to facilitate removal of approach plate from booklet and allow replacing back in book after use.

Comment To Question No. E26 Survey Number: 0647

STAR's & SID's kept in separate book.

Comment To Question No. E26 Survey Number: 0649

Bulky books are difficult to deal with without clips or some other method of holding them open.

Comment To Question No. E26 Survey Number: 0654

Large books (thick) hard to keep in place and keep open to read entire plate. I use rubber band to anchor book open. It's too thick to put on clip board, set on leg or use large paper clip to anchor down.

Comment To Question No. E26 Survey Number: 0657

Government charts are very difficult to handle due to the size (thickness) and tight bonding. They will not fit on a kneeboard or in any holder made for commercial uses. You sometimes are required to tear the chart out so as to read it.

Comment To Question No. E26 Survey Number: 0659

In military fighters there is no way of holding the NOS charts. We usually carry a large clip to hold the page open. Sometimes the chart won't bend easily because its too thick & it falls out of the clip. Often, I just tear out the appropriate page just make it more manageable (then, I lose it for the next flight.)

Comment To Question No. E26 Survey Number: 0668

Too bulky for small space available in fighter type aircraft.

Appendix H

Comment To Question No. E26 Survey Number: 0669

At times, we have difficulty in keeping our approach books opened to the correct page. (the book is too thick for our clip.)

Comment To Question No. E26 Survey Number: 0671

For single pilot operations, bound books keep clutter to a minimum; but pages tend to fall out at inopportune times. Smaller books with no glue for binding would help.

Comment To Question No. E26 Survey Number: 0673

They are too bulky.

Comment To Question No. E26 Survey Number: 0684

The Government charts need to be removeable from the binder so that it is easier to use and circulate in the cockpit. This is most important when approaching an airport where more than one approach is in use and it is necessary to have BOTH approach plates handy.

Comment To Question No. E26 Survey Number: 0686

The binding comes apart/have to be folded back thus either the top or bottom of approach plate is obscured.

Comment To Question No. E26 Survey Number: 0696

Have problem with book being cumbersome and hard to handle in cockpit - They are always coming out of knee pad at inopportune times.

Comment To Question No. E26 Survey Number: 0703

I personally do not like the order in which they are packaged.

Comment To Question No. E26 Survey Number: 0715

The book is not made to stay open while in use.

Comment To Question No. E26 Survey Number: 0716

I like to keep individual charts on my yoke clip for easy viewing. Bound books are hard to keep open and balanced on legs.

Appendix H

Comment To Question No. E26 Survey Number: 0717

More than once the booklet has closed at a critical moment and I had to flip pages and fly an approach simultaneously.

Comment To Question No. E26 Survey Number: 0718

Very awkward to handle and work with, also difficult to locate charts rapidly.

Comment To Question No. E26 Survey Number: 0719

Too big will not stay open - NOAA -

Comment To Question No. E26 Survey Number: 0727

Book format tough to use.

Comment To Question No. E26 Survey Number: 0728

For light airplane flying, I like the flip book, more convenient in space. But for big airplane flying I like the notebook with individual pages, but the bulky flip book can't be updated easily, you need a new book!

Comment To Question No. E26 Survey Number: 0733

Some of the volumes are too thick to fit the plate holders or paper clamps.

Comment To Question No. E26 Survey Number: 0734

The government charts should be bound in such a manner that they can be folded back on themselves to form a flat package.

Comment To Question No. E26 Survey Number: 0740

The "books" often break apart and are awkward to use and read during the procedure. They do not fit well into most holders and commonly end up on the floor at critical times.

Comment To Question No. E26 Survey Number: 0745

NOAA & DoD bound volumes difficult to use, i.e., held open to a particular page without large ungainly clip. Bound volumes are expensive to revise.

Appendix H

Comment To Question No. E26 Survey Number: 0747

Flying into Cincinnati International Airport is in Kentucky, not Ohio. Can be confusing if you are looking for plate in a hurry.

Comment To Question No. E26 Survey Number: 0762

The government charts are much more difficult and confusing to use. The Jeppesen format has always been more clear.

Comment To Question No. E26 Survey Number: 0764

Some books are too thick and when opened to the appropriate page the binding material was to be folded and after extended use, will break or pages will fall out.

Comment To Question No. E26 Survey Number: 0773

Like holding a "Slinky" - Lose place a lot.

Comment To Question No. E26 Survey Number: 0778

Not all the low approaches for an airport are in the Vol A thru E. You might have to go to one of the other twelve low volumes.

Comment To Question No. E26 Survey Number: 0781

DoD after several uses, the pages tend to fall out.

Comment To Question No. E26 Survey Number: 0783

SID's & STAR's should be included in the approach booklet with the approaches instead of in a separate booklet. Approach booklet should not be so large that it cannot be held open with a large clip. Better yet, design a way that government charts can lie open to the chart you want and not flip closed.

Comment To Question No. E26 Survey Number: 0785

Too many books to find all information. Approach chart books hard to handle during approach.

Comment To Question No. E26 Survey Number: 0786

Haphazard ordering of individual approaches for specific airports (DoD), i.e., one airport ILS, NDB, TAC; another NDB, ILS, TAC. I prefer Jeppesen arrangement (H-1... B-1...).

Appendix H

Comment To Question No. E26 Survey Number: 0788

They should be packaged in loose leaf, ring type.

Comment To Question No. E26 Survey Number: 0790

Government approach "books" create a great deal of searching to service much needed information. Jepps have almost all information right at hand.

Comment To Question No. E26 Survey Number: 0791

Government approach charts are hard to use since all are packaged in one book. I prefer separate approach sheet rather than book.

Comment To Question No. E26 Survey Number: 0792

The difference in format after dealing with Jeppesen can be confusing.

Comment To Question No. E26 Survey Number: 0793

Charts toward the back of the book are very difficult to use. Generally had to use large rubber bands to hold the book open and they covered needed information.

Comment To Question No. E26 Survey Number: 0797

Four-week update not often enough. SID's & STAR's are in separate packages.

Comment To Question No. E26 Survey Number: 0799

Print is too small and bunched up. Should be bold print with large pages if necessary, to accommodate.

Comment To Question No. E26 Survey Number: 0803

Having for years used the Jepps charts and now with a company that uses the government charts, I find it very difficult to accept the different format govt. charts use. The lack of coordinates on enroute charts and approach plates, and the general bulkiness of approach SID's and STAR plate books are too much to handle in a small cockpit environment.

Comment To Question No. E26 Survey Number: 0807

The thickness of most low alt. approach books make it very difficult to use in transport type aircraft when an approach chart holder is used. Particularly where the book has to be placed with the spine down and page ends up to read the approach. The weight of the book usually causes it to fall on the floor sometime during the approach.

Appendix H

Comment To Question No. E26 Survey Number: 0812

Yes it's hard to have out in front of you on a chart holder.

Comment To Question No. E26 Survey Number: 0813

Fat books are very cumbersome and unhandy. Very difficult to fold and hold them for ready reference. I much prefer making revisions to Jeppesens and being able to select a single chart for use. Table of contents is ludicrous. Area, TCA, STAR's, SID's and approach charts for a specific airport should be filed together. When arriving at a strange airport, the process of using the table of contents to select proper STAR is very cumbersome. Jeppesen, although they have some room for improvement, distributes a FAR SUPERIOR product. The only advantage to NOAA charts, as I see it, is at revision time being able to discard old books and replace with current one.

Comment To Question No. E26 Survey Number: 0820

A thick book of approach charts is hard to use.

Comment To Question No. E26 Survey Number: 0821

After removal of approach plates from the binders, they are very difficult to maintain and use at a later date. Charts should be maintained in a binder--possibly prepunched holes in the NOS approach charts.

Comment To Question No. E26 Survey Number: 0823

I like the idea of throw away and replace in entirety, but I do not like the type of binding the NOAA uses. I would much prefer loose leaf charts that could be replaced by a State at a time. I also prefer Jeppesens arrangement of alphabetical by city.

Comment To Question No. E26 Survey Number: 0833

Most operations utilize a trip book with approach charts, STAR's, SID's, etc. Not possible with NOAA charts. Jeppesen is ahead in this area.

Comment To Question No. E26 Survey Number: 0836

Approach books are too thick and government knee boards too big & clumsy.

Comment To Question No. E26 Survey Number: 0838

Requires too much study; not enough LAT/LONG information.

Appendix H

Comment To Question No. E26 Survey Number: 0841

Pages must be removable (loose leaf).

Comment To Question No. E26 Survey Number: 0847

They should be easier to remove from the book.

Comment To Question No. E26 Survey Number: 0866

Books tend to "fall apart" when opened so entire approach plate can be viewed - paper tends to disintegrate after several uses.

Comment To Question No. E26 Survey Number: 0868

DoD approach charts should all be updated on the same cycle, instead of being staggered. Current practice allows some charts to be current while others are going out of date. The currency times are not even standardized within theaters (i.e., Europe, Africa, Pacific, Alaska, Canada, and US). If dating can't be done world wide, at least make it theater wide where you get (for example) all new European publications on the same day instead of over a period of months.

Comment To Question No. E26 Survey Number: 0874

Much prefer the way Jeppesens are packaged. Gov't charts are too hard to locate approaches, plus it is difficult to use SID's and STAR's in other booklets.

Comment To Question No. E26 Survey Number: 0877

Books are difficult to hold open to correct page without ripping or destroying the chart. Either thinner books, better grade of paper or different binding system.

Comment To Question No. E26 Survey Number: 0878

Books are too bulky, pages fall out easily, and tear easily. We need thinner books. A larger margin at the bound edge would make current books more serviceable. Jeppesen has a good system with loose pages but these can fall out of binders, become misfiled or lost.

Comment To Question No. E26 Survey Number: 0880

Continued usage of select pages leads to torn and removed pages.

Appendix H

Comment To Question No. E26 Survey Number: 0882

NOAA charts are clumsy in present "pad" form. They are however convenient to update.

Comment To Question No. E26 Survey Number: 0883

The book format with needed data located on separate pages is cumbersome.

Comment To Question No. E26 Survey Number: 0884

Thickness of approach books is sometimes a problem. Making it difficult to secure without covering information or top of book curving out of sight toward binding. Suggest more room be made at top to allow for use of clip or clip board.

Comment To Question No. E26 Survey Number: 0885

Very difficult to hold book for plate in use.

Comment To Question No. E26 Survey Number: 0886

Charts too bulky - Hard to keep open in cockpit.

Comment To Question No. E26 Survey Number: 0888

The binding makes it extremely difficult to hold the approach books open to the right page. Also, the paper is very easily torn.

Comment To Question No. E26 Survey Number: 0892

Occasionally, with heavy use, the books will split open.

Comment To Question No. E26 Survey Number: 0894

Do not use government charts. I "grew up" with Jeppesens and I'm using their format and not familiar with government pub's.

Comment To Question No. E26 Survey Number: 0895

It's been approx. 25 years - When I saw my first Jeppesen chart I felt more "secure" about an approach.

Appendix H

Comment To Question No. E26 Survey Number: 0899

Government charts (DoD) often are bound in booklets that are too thick to put on yoke mounted clips or in chart holders. Also, bending booklets to place on clipboards or in chart holder often result in torn pages, and missing pages.

Comment To Question No. E26 Survey Number: 0901

Approach charts are too thick to fit in approach plate holders. Also the airfield diagrams could not be looked at same time, because both in same book.

Comment To Question No. E26 Survey Number: 0919

When using NOS charts you can't hold them or lay them on your lap. My recommendations are to put NOS charts in a binder like Jeppesens - so you can put them on a clip board individually.

Comment To Question No. E26 Survey Number: 0927

With repeated use they tend to rip and fall apart. Perhaps use sturdier paper.

Comment To Question No. E26 Survey Number: 0928

Too many varied sources for similar approaches, i.e., Vol. #'s, Vol. Letters, selected LOW/HI, etc.

Comment To Question No. E26 Survey Number: 0939

It is difficult to use booklet with a yoke clip or similar device.

Comment To Question No. E26 Survey Number: 0951

DoD approaches require folding a thick book to be inserted in an approach plate holder. Important information cannot be easily seen due to this. Perhaps, a 3 ring type where the full page can be seen.

Comment To Question No. E26 Survey Number: 0965

The approach plate holders on the C-141 are designed so that the spine of the approach plate book must be broken to properly fit. As soon as this is done, pages begin to fall out during subsequent usage. Even in other aircraft, the most convenient way to display the selected approach is to break the spine of the book so that it lays flat.

Appendix H

Comment To Question No. E26 Survey Number: 0969

Bound books of government approach charts are too thick & tend not to stay open to the selected page. SID's & STAR's should be filed with the approach charts (all charts in one location.)

Comment To Question No. E26 Survey Number: 0985

Almost without exception, the pages for your "Home drome" are tearing out/apart/mangled before that book is reissued. The TCN concept is terrible! Guys are invariably forgetting to check that thing... I was Chief of Flight Safety at M.A.C. for awhile and believe the TCN will cause an accident one of these days because it's too difficult to remember to check in the "Heat of Battle."

Comment To Question No. E26 Survey Number: 0999

Some low altitude books are too thick to fit in aircraft plate holders.

Comment To Question No. E26 Survey Number: 1013

The books which contain the approach charts are sometimes very cumbersome to work with. Also, I would like to see the charts arranged alphabetically by airfield name rather than by geographic location (I believe this was done prior to the present system).

Comment To Question No. E26 Survey Number: 1026

Too bulky - paper swells when wet.

Comment To Question No. E26 Survey Number: 1028

The books are bulky & do not fit in the approach plate holders when too thick - limit thickness.

Comment To Question No. E26 Survey Number: 1038

Airports should be indexed by "location" rather than the given name of the aerodrome. This creates confusion when in a hurry to locate a particular chart.

Comment To Question No. E27 Survey Number: 0001

Jeppesen style packaging is the only workable system. Although, I have had an FAA inspector reject my instrument students' Jeppesen charts for the purpose of an instrument check flight, I find that Jeppesen format is much easier to integrate in a busy cockpit.

Appendix H

Comment To Question No. E27 Survey Number: 0007

Separate pages to make them more compatible with clip/knee board usage. Presently they are too thick.

Comment To Question No. E27 Survey Number: 0015

On "low" charts it would be much easier if the panels were the same scale, and when putting two low charts together, the same scale should be used. DoD approach charts: 1) Pages rip easily. 2) Very difficult to handle in clip knee boards especially when using the last 10 pages or so.

Comment To Question No. E27 Survey Number: 0019

Need a better way of binding them than glue.

Comment To Question No. E27 Survey Number: 0021

Don't print any information close to the bound area. Often it's necessary to spread the binding wider to see the coordinates and times to MAP.

Comment To Question No. E27 Survey Number: 0023

Publish in loose format or with spiral binding to allow book to be completely opened.

Comment To Question No. E27 Survey Number: 0025

It would be better, if they were packaged in a way that the approach plates could be removed and used individually.

Comment To Question No. E27 Survey Number: 0027

Have the approach plates in a spiral ring book form with the rings across the top of the booklet.

Comment To Question No. E27 Survey Number: 0029

Binder style.

Comment To Question No. E27 Survey Number: 0031

Change the CONUS books so that when a pilot opens a book to an airfield, all the departure/arrival procedures are in that one place (e.g., STAR's, SID's, IAP's, RADAR mins. and airfield diagram are all together, not spread out all over the damn place). Divide the country into regions that will avoid books that are too thick to be usable.

Appendix H

Comment To Question No. E27 Survey Number: 0041

Clean up minima format.

Comment To Question No. E27 Survey Number: 0043

Prefer Loose Leaf.

Comment To Question No. E27 Survey Number: 0044

Recommend selling L-charts and approach charts together. Recommend Approach charts and SID's STAR's in the same publication.

Comment To Question No. E27 Survey Number: 0055

Individual pages in separate binders. Would also save the cost of reprinting so often, would only have to reprint changes.

Comment To Question No. E27 Survey Number: 0063

Standardize format more. Side view needs to be larger, larger airfield depiction, smaller top view.

Comment To Question No. E27 Survey Number: 0068

Lighting depictions should be placed back into the approach books and removed from the flight information hand book to eliminate the need to reference an excessive number of publications for any approach.

Comment To Question No. E27 Survey Number: 0095

Too much paper shuffling for minor details. Pen & ink for minor changes would be sufficient.

Comment To Question No. E27 Survey Number: 0106

Limit book thickness to a maximum less than what they are presently.

Comment To Question No. E27 Survey Number: 0120

Personal preference for Loose Leaf Jepps. format.

Comment To Question No. E27 Survey Number: 0126

Make approach charts & aids removable.

Appendix H

Comment To Question No. E27 Survey Number: 0137

Like Jeppesen.

Comment To Question No. E27 Survey Number: 0163

Looseleaf packaging!

Comment To Question No. E27 Survey Number: 0183

Use Jep's format.

Comment To Question No. E27 Survey Number: 0189

As Jepp's are packaged.

Comment To Question No. E27 Survey Number: 0215

Same as Jeppesen.

Comment To Question No. E27 Survey Number: 0217

Either deepen binding or use a different type.

Comment To Question No. E27 Survey Number: 0218

For any city the primary airport listed first and the approach plate in order or primary approach and primary runway in descending order.

Comment To Question No. E27 Survey Number: 0219

The method of publishing the DoD approach charts in booklet form has always been a nuisance. There is no good method of displaying the proper page during an approach. Often much of the information cannot be seen because of the binding of the pages and usually the books are so thick they cannot be held securely. Also the requirement to change each book during the change cycle rather than page changes is cumbersome.

Comment To Question No. E27 Survey Number: 0220

NOAA approach plates should be packaged loose, each plate individual.

Comment To Question No. E27 Survey Number: 0222

They should be available as single sheet, hole punched, to go in binders. But they should still be completely replaced every 50 days.

Appendix H

Comment To Question No. E27 Survey Number: 0223

Need more durable paper.

Comment To Question No. E27 Survey Number: 0223

Despite the nuisance of transporting and updating, I like the information and format of Jeppesen Charts over Gov't Charts. Gov't charts only selling point is that they are easy to carry and don't have to be revised one page at a time.

Comment To Question No. E27 Survey Number: 0227

Should be loosely packaged as the Jeppesen charts then only those charts required to accomplish the mission need to be carried.

Comment To Question No. E27 Survey Number: 0232

Similar to Jepp's.

Comment To Question No. E27 Survey Number: 0245

It would be an improvement on the STARS if all the charts & data was placed back to back, i.e., Teterboro STAR, now listed on page 86 & 115. Would be better if all arrivals were placed on a sequential base, like on page 86 & 87, instead of having to relocate from page 86 for one arrival and then to another page (115) for the other, serving the same airport.

Comment To Question No. E27 Survey Number: 0252

Go back to sheet type.

Comment To Question No. E27 Survey Number: 0254

Use the Jeppesen method.

Comment To Question No. E27 Survey Number: 0255

The bound NOAA books are hard to use. They should be on rings so you can open to the chart you want and either take out the chart or lay the book flat.

Comment To Question No. E27 Survey Number: 0256

Gov't. charts should be packaged and presented more like the Jeppesen charts.

Appendix H

Comment To Question No. E27 Survey Number: 0258

Just try to make a way for them to stay open.

Comment To Question No. E27 Survey Number: 0259

Like Jepps - one page at a time.

Comment To Question No. E27 Survey Number: 0260

Like Jepp's - or Micro tape film, then displayed on the Radar screen.

Comment To Question No. E27 Survey Number: 0262

Something similar to Jeppesen - condense all appropriate information into one book.

Comment To Question No. E27 Survey Number: 0268

A binder-type system similiar to Jeppesen should be considered!

Comment To Question No. E27 Survey Number: 0274

One reason we do not use Government approach plates is the fact that the books are bound; however, for many persons this is convenient and I do not think it should be changed.

Comment To Question No. E27 Survey Number: 0283

Gov't. pubs. should be organized and packaged in single sheets instead of being bound.

Comment To Question No. E27 Survey Number: 0289

Like Jeppesen.

Comment To Question No. E27 Survey Number: 0308

Individual plates similar to Jeppesen. They could be updated individually, and save \$ instead of reproducing the entire book.

Comment To Question No. E27 Survey Number: 0309

Hard to handle in the cockpit.

Appendix H

Comment To Question No. E27 Survey Number: 0320

Should be Loose-leaf.

Comment To Question No. E27 Survey Number: 0333

Package government charts on separate pages.

Comment To Question No. E27 Survey Number: 0337

Package in book style (i.e., Jepp.) so one at a time can be displayed.

Comment To Question No. E27 Survey Number: 0350

I prefer the loose leaf format Jeppesen uses.

Comment To Question No. E27 Survey Number: 0368

Gov't. charts are too thick to fit in the C-5 chart holders. I like bound charts, however, better than Jeppesen.

Comment To Question No. E27 Survey Number: 0368

Smaller books.

Comment To Question No. E27 Survey Number: 0382

Replaced w/Jeppesen or like Jeppesen.

Comment To Question No. E27 Survey Number: 0402

Just like Jepps.

Comment To Question No. E27 Survey Number: 0424

Thinner books or Jeppesen style.

Comment To Question No. E27 Survey Number: 0425

If they could be bound on the side with holes punched to fit into Jeppesen holders.

Comment To Question No. E27 Survey Number: 0427

Removable or "tear out" pages.

Appendix H

Comment To Question No. E27 Survey Number: 0439

Same as Jeppesen single paged in a looseleaf type note book.

Comment To Question No. E27 Survey Number: 0463

Updated by booklet form.

Comment To Question No. E27 Survey Number: 0466

Loose leaf, or with blank margin at top of page.

Comment To Question No. E27 Survey Number: 0476

Seperate pages as Jepp. charts--would also be less expensive for revisions.

Comment To Question No. E27 Survey Number: 0478

Similar to Jeppesen.

Comment To Question No. E27 Survey Number: 0483

Package them in a manner allowing removal of the plates you need for a specific airfield.

Comment To Question No. E27 Survey Number: 0508

DoD approach plates should be packaged like Jepp. plates for ease of revision & use.

Comment To Question No. E27 Survey Number: 0509

Change Jeppesens or DoD to agree.

Comment To Question No. E27 Survey Number: 0565

By state, then city.

Comment To Question No. E27 Survey Number: 0568

Similar to Jeppesen.

Appendix H

Comment To Question No. E27 Survey Number: 0576

Jeppesen revisions may be time consuming but they are more efficient than replacing all of the NOS booklets, which must certainly cost more money. Also, Jepp. format is easier to handle in cockpit by being able to remove only the necessary charts.

Comment To Question No. E27 Survey Number: 0578

Minimums with equipment inop. alternate & take off minimums should be with approach plates not in separate book. It should all be in one place.

Comment To Question No. E27 Survey Number: 0580

The government charts are made for the convenience of the government printer and not the pilots. The information needed is too spread out to be found quickly when changes (un-expected) come about. Also one has to have too many books of information to just be legal to fly IFR. Most corporate & company flying is repeated trips in the same areas of normal travel by air - whether that travel is 200 NM or 1500 NM it is repeated many times. Therefore, most pilots carry one book - which covers those most frequent travelled trips.

Comment To Question No. E27 Survey Number: 0582

Individual page (binder) format.

Comment To Question No. E27 Survey Number: 0583

I don't know what the answer is to question 27. They are tough to use without cutting them out. Once you cut them out of the book and put them back in, I have to use a rubber band to hold them together. But the reason I use NOAA's is that I don't have time to update Jepp. charts! It is very easy to discard whole set and use new ones.

Comment To Question No. E27 Survey Number: 0584

Although far from perfect the Jepp. approach is better.

Comment To Question No. E27 Survey Number: 0588

Too difficult to use in cockpit. Should be in loose leaf binders such as Jeppesen.

Comment To Question No. E27 Survey Number: 0589

Like Jeppesen or some other loose manner.

Appendix H

Comment To Question No. E27 Survey Number: 0590

Plates that flip more easily or can be retained in knee boards better.

Comment To Question No. E27 Survey Number: 0597

Government charts packaged in book form are very cumbersome and difficult to use in the cockpit. Approach plate holders in corporate Jets generally do not allow for use of such books properly.

Comment To Question No. E27 Survey Number: 0597

The Government could learn something from Jeppesen regarding approach plate packaging.

Comment To Question No. E27 Survey Number: 0603

NOAA Charts are not organized by State & City like Jeppesen.

Comment To Question No. E27 Survey Number: 0604

There are so many pubs. information is "spread out" over many books.

Comment To Question No. E27 Survey Number: 0608

Provide some type of database system that could be updated which would print out or display on Charts the procedure required. Many operators would pay the price for not having paper cluttered cockpits.

Comment To Question No. E27 Survey Number: 0609

Gov't Charts should have all the appropriate information on one chart as necessary rather than having to look elsewhere other sections.

Comment To Question No. E27 Survey Number: 0614

The government system is difficult to use because the books do not hold up well and sometimes are too thick, but its better than the Jeppesen system with all their changes.

Comment To Question No. E27 Survey Number: 0617

Do it like Jepp. does.

Appendix H

Comment To Question No. E27 Survey Number: 0619

Replace contents loose leaf every 56 days.

Comment To Question No. E27 Survey Number: 0622

You must be able to transfer the plate to the yoke clip without tearing it out of the main plate book otherwise, you end up with a mess or worse: lost plates.

Comment To Question No. E27 Survey Number: 0626

The books are difficult to handle in cockpit operation, therefore we won't use them.

Comment To Question No. E27 Survey Number: 0629

Although our experience with NOAA charts was short lived - we found that transitioning between the NOAA and Jeppesens was difficult. The information was presented in very different formats. The amount of separate "books" required to store the "plates" is dramatically different and we found that coming up with a natural book grouping was impossible. Also the use of separate books for SID's, STARS, and individual approach plates added quite a lot of workload.

Comment To Question No. E27 Survey Number: 0634

I like loose leaf packaging.

Comment To Question No. E27 Survey Number: 0635

Spiral binding.

Comment To Question No. E27 Survey Number: 0639

Package them like Jeps. You can take the one you need out and lay the rest on the floor, out of the way. Then you don't have to worry about the damn book closing on you half way down the ILS.

Comment To Question No. E27 Survey Number: 0640

Changes in the main document are not convenient to locate and are time consuming.

Comment To Question No. E27 Survey Number: 0641

Loose leaf.

Appendix H

Comment To Question No. E27 Survey Number: 0649

Separate sheets. (Like Jeppesen)

Comment To Question No. E27 Survey Number: 0652

The present method of revisions by the "other" publisher of approach charts is in my opinion a gross waste of time. The method used by NOAA plus DoD is far superior to Jeppesen's method of sending manila envelopes every week or so and spending hours clearing out and inserting pages.

Comment To Question No. E27 Survey Number: 0654

More books, thinner volumes.

Comment To Question No. E27 Survey Number: 0668

Need ability to arrange plate (i.e., removable binder) so current plate could be on top.

Comment To Question No. E27 Survey Number: 0669

The system we use to keep the book open (the dreaded clip), covers needed information. A better method to keep the proper page presented is needed.

Comment To Question No. E27 Survey Number: 0670

Jepp. Charts should be packaged like NOAA. It is for this reason we switched from Jepp. to NOAA, although Jepp. Charts have a much better format!!

Comment To Question No. E27 Survey Number: 0676

NOAA Charts should be put in a ring binder of disposable nature, i.e., plastic rings or something.

Comment To Question No. E27 Survey Number: 0686

Package like Jeppesens that way only required pages should be changed/updated.

Comment To Question No. E27 Survey Number: 0692

NOS Charts, should be separated, so you can put on yoke clip in front of you.

Appendix H

Comment To Question No. E27 Survey Number: 0702

I wish I could tear approach charts out of the book, perhaps on dotted line. Hard to strap down the whole book on approach. Plate could be saved in a binder especially for plates taken from books.

Comment To Question No. E27 Survey Number: 0703

Return to city within State.

Comment To Question No. E27 Survey Number: 0715

Spiral (metal spring) or plastic segmented binding to effect keeping book open during use.

Comment To Question No. E27 Survey Number: 0716

I think its great that pilots have a choice between bound and looseleaf formats.

Comment To Question No. E27 Survey Number: 0717

The microscopic, low contrast print is very difficult to read in turbulence and/or reduced lighting. Moving the airport diagram to a separate page would allow larger print. This information for the most part is needed after the approach is completed (exception: airport elevation).

Comment To Question No. E27 Survey Number: 0718

Go back to loose-leaf from, alphabetically by (1) State and (2) City and (3) Airport.

Comment To Question No. E27 Survey Number: 0719

Like Jeppesen.

Comment To Question No. E27 Survey Number: 0727

Notebook format similar to Jeppesens.

Comment To Question No. E27 Survey Number: 0728

TAB the flip book, at last alphabetically.

Appendix H

Comment To Question No. E27 Survey Number: 0732

We switched from Jeppesen to NOS about a year ago due to the excessive workload of filing revisions. After a short period of familiarization we find the NOS chart to be quite serviceable.

Comment To Question No. E27 Survey Number: 0732

SID's & STAR's should be included in IAP booklet, not separately. DH & MDA should be in larger print.

Comment To Question No. E27 Survey Number: 0733

Don't go back to individual sheets. That's too prone to screwups and takes way too much time.

Comment To Question No. E27 Survey Number: 0740

Jeppesens looseleaf format has drawbacks but I find it preferable to DoD.

Comment To Question No. E27 Survey Number: 0741

DoD publications significantly reduce the annual workload associated with revisions. The small letters and numbers on the DoD airport diagrams combined with light blue ink make these difficult to read particularly at night.

Comment To Question No. E27 Survey Number: 0745

With NOAA & DoD, one has to go to two separate publications to find SID and STAR information. This is inconvenient.

Comment To Question No. E27 Survey Number: 0745

NOAA & DoD inst. plates could be made in a loose leaf form similar to the commercial company that offers plastic snap ring binders held in parallel by a plastic rod or bar. Let civilian contractors, eg., Jeppesen do it "Why reinvent the wheel?"

Comment To Question No. E27 Survey Number: 0752

Gov't charts should be loose leaf, like Jeppesen.

Comment To Question No. E27 Survey Number: 0759

DoD & NOAA should be packaged differently. Some sort of leaf-type binder may be needed. When you use the "books" they are too thick and need to be folded over at the binding and they brake then the pages fall out and can get lost.

Appendix H

Comment To Question No. E27 Survey Number: 0761

Government charts are hard to handle in the cockpit-being in "book" (bound) format. Suggest removable approach charts as Jeppesen has. Typically, a chart gets torn out of the book to be used in an approach plate holder and then gets lost or out of sequence. ATC has issued "Hold at the LOM as published" when no hold was published, only a procedure turn. This is probably an ATC mistake.

Comment To Question No. E27 Survey Number: 0764

The Canadians use a wire-coil binder system and I used their books and really enjoyed the system.

Comment To Question No. E27 Survey Number: 0765

Each chart should be complete on one page. Current DoD & NOAA systems require excessive cross-referencing A/FD's & IFR supplements awkward to use and very hard to read at day or night.

Comment To Question No. E27 Survey Number: 0772

Government approach charts should be placed in a more useful binding. With normal wear and tear, paper rip easily, bindings break and books become tattered sometimes resulting in lost paper etc. It is also difficult to keep the book open to the proper page and, when held open by a holder of some sort, it is difficult to see the information near the binding.

Comment To Question No. E27 Survey Number: 0776

Switching books from SID's to approach plates to STAR's etc. is cumbersome. Put all these into area books vice STAR's, Appr. Plates, and SID books, i.e., put all of the SID's, STAR's & Approach plates for the Southeast in one book instead of 3 separate books.

Comment To Question No. E27 Survey Number: 0778

Airports listed in Low Vol A thru E (DoD) should have all approaches published. This may mean more than five volumes but may be only the most frequently used airports need be listed in Volume A thru E.

Comment To Question No. E27 Survey Number: 0787

It is impossible and impracticable to use government charts in a helicopter. The books cannot be folded back especially the last 1/3 of the chart book. They should be made like the Jeppesens so you can take what you want, what you need and don't clutter up a helicopter cockpit.

Appendix H

Comment To Question No. E27 Survey Number: 0788

They should be presented in order by city and airport served.

Comment To Question No. E27 Survey Number: 0789

Packaging STAR's in a separate volume from approach procedures and packaging SID's INDIVIDUALLY is a terribly inconvenient procedure. They should be included in the same volume as the instrument approach procedure for the applicable area.

Comment To Question No. E27 Survey Number: 0792

Standardize all publications formats.

Comment To Question No. E27 Survey Number: 0793

Perhaps spiral bound along the left hand edge. An effort must be made to control the thickness of the books.

Comment To Question No. E27 Survey Number: 0797

SID's and STAR's should be incorporated with the airport approaches.

Comment To Question No. E27 Survey Number: 0799

Use larger pages. Print on DoD should be black not blue.

Comment To Question No. E27 Survey Number: 0804

Jeppesen Charts are more desirable than Gov't approach, since they are on better quality paper the printing is easier to read. However, nuts to all those Jepp. revisions.

Comment To Question No. E27 Survey Number: 0805

Loose leaf so they can be removed and used on clip boards or knee pads. Also print on white paper so it can be read easier in dim lighting as at night in cockpit.

Comment To Question No. E27 Survey Number: 0806

Should be black and white not blue.

Appendix H

Comment To Question No. E27 Survey Number: 0807

More geographical areas resulting in fewer pages and therefore thinner approach books.

Comment To Question No. E27 Survey Number: 0810

I find the government charts bulky to handle in a busy cockpit in flight. I prefer to be able to select the one approach chart to be used and place it in a stationary position easily seen from the PIC position. All information needed for the approach being used should be on one side of the chart so the pilot does not have to change pages or flip the chart over.

Comment To Question No. E27 Survey Number: 0812

Yes, so they can be used individually.

Comment To Question No. E27 Survey Number: 0830

NOAA SID's & STAR's should be incorporated with the airports they serve, rather than in a separate booklet.

Comment To Question No. E27 Survey Number: 0833

Rather than sending complete book I like Jeppesen revision packaging the best. Next step should be electronic up-dating of some sort.

Comment To Question No. E27 Survey Number: 0835

I have used primarily Jeppesen charts for all of my 21 years of flying. I find the government charts to be confusing, especially in that they don't show as much information, such as inbound and outbound courses on approach charts, etc. The only problem with the Jeppesen charts for me is the constant changing of plates, etc.

Comment To Question No. E27 Survey Number: 0836

I learned instruments on DoD plates - Learned Jepp's at the airline. Interpretation & transfer at first was slow but is a more useable aid. Going back to DoD plates is like using a relic from a museum. DoD style-handbook, supplement, approach book is excessive, bulky, and hard to manage especially for tactical jets. A new book should have supplement information, take-off mins, airport diagram, all freq's, STAR's, SID's, all available approaches for each airport. The pages need to be 1 1/2" longer to account for the fold so you can read all of the place at one glance.

Appendix H

Comment To Question No. E27 Survey Number: 0836

Government books don't have all approaches to some airports that they have some approaches to (may have an ILS/NDB but not a VOR or LOC BC at same airport - low Altitude).

Comment To Question No. E27 Survey Number: 0838

The Jeppesen format is best and easiest to use.

Comment To Question No. E27 Survey Number: 0847

A book is OK but there should be away to use them as a single sheet and return them.

Comment To Question No. E27 Survey Number: 0866

Smaller books that have "Spines" that can be opened completely without tearing apart and by using more durable paper/medium.

Comment To Question No. E27 Survey Number: 0873

DoD charts are still too thick and flimsy. We have standard chart holders, but if a page in the middle is needed (and after folding the book) the page comes out. Make them the size of a typical Terminal Change Notice book. Instrument procedures as well as Go-Around procedures vary considerably. Some are horribly-cluttered, non-standard and confusing. Some (probably most) are easy to read and fly.

Comment To Question No. E27 Survey Number: 0880

Use sturdier paper to prevent tearing out of pages.

Comment To Question No. E27 Survey Number: 0882

Packaging differently would help, however I have no suggestions presently and updating as Jeppesen does takes too much time.

Comment To Question No. E27 Survey Number: 0883

Eliminate the tendency of the book to "flip" from the subject page.

Comment To Question No. E27 Survey Number: 0884

Make total book size thinner.

Appendix H

Comment To Question No. E27 Survey Number: 0885

Why not send the booklets as loose leaf with holes for placing into a holder. Send a complete book for revision and discard all old pages rather than the present revision system of Jeppesen.

Comment To Question No. E27 Survey Number: 0886

Easier opening & folding.

Comment To Question No. E27 Survey Number: 0889

DoD/NOAA chart books are too thick and should have wider margins at the bound end of the page to compensate for the books' spine causing the page to "round over".

Comment To Question No. E27 Survey Number: 0890

(C-130 pilot): Instead of using the TCN system, something more in line with Jeppesen system would be better. Also periodic outdateding of charts and procedures is probably not cost effective. Again a Jeppesen type system might be more effective (change when the approach procedure changes). However, I personally find the Jeppesen format confusing. Also, making enroute charts of heavier material (longer lasting) and keeping them current for a longer period might be both more convenient and more cost effective.

Comment To Question No. E27 Survey Number: 0899

Either eliminate seldom-used approaches from books, or use Jeppesen style binders & approach depictions.

Comment To Question No. E27 Survey Number: 0900

I think the size of the pictures should be reversed or made equal. The altitude profiles are much more important than their size would indicate.

Comment To Question No. E27 Survey Number: 0901

Recommend loose leaf. If not loose leaf reduce thickness & make separate book for airfield diagrams.

Comment To Question No. E27 Survey Number: 0903

DoD approach plates do not contain enough information and when book is bound from top they are extremely difficult to keep open for the duration of the approach. I personally like the Jeppesen ring binder method of packaging.

Appendix H

Comment To Question No. E27 Survey Number: 0905

Too much information on each approach plate (DoD) should have only 1 type approach per page except for ILS/Loc approach but not TACAN/ILS as at Kelly AFB.

Comment To Question No. E27 Survey Number: 0920

Government approach books are difficult to use in approach book holders, especially if the approach is at the front or rear of the book. Gov't approach plates are listed by airport name while Jeppesen are listed by city name. Jeppesen are easier to locate, this should be standardized. Some things done in the Gov't (DoD) app. book aren't logical, example Quonset State Airport, RI is listed in the DoD IFR supplement as Quonset State RI yet in the DoD approach book Low Vol-9 it is listed under North Kingtown. This is inconsistent. Hartsfield in Atlanta is listed under "the" William B Hartsfield in the IFR supplement and under Atlanta in the approach book. DoD must be consistent. Either use airport name or city name; don't mix and match.

Comment To Question No. E27 Survey Number: 0921

DoD approach books - I really don't like having 2 complete sets of low books to work with. (i.e., low altitude lettered volumes A-E and numbered volumes 1-12) I don't care how many total volumes there are, but I would like to be able to pick up one book and know that it has all of the available information.

Comment To Question No. E27 Survey Number: 0936

Biggest headache is NOAA charts will not stay open without clips, bands etc. Some sort of simple ring binder, kept in possession of user, should be devised so new editions can be quickly inserted. Incidentally, NOAA charts are too small and difficult to read - Especially at night. Jeppesen offers much more in this area.

Comment To Question No. E27 Survey Number: 0937

SIDs & Hi approaches should be located in the DoD flight information published by the appropriate airfield. See overseas flight information pub. Everything is together instead of 3 or 4 different books.

Comment To Question No. E27 Survey Number: 0938

Package IAP plates in a smaller package. Often the plates get ripped out of the larger books. The pages rip out easily. Many volumes are wasted because a few approaches get ripped out & are missing. The single sheet IAP like the Jeppesens is a good idea.

Comment To Question No. E27 Survey Number: 0938

Note: I'd recommend looking at other country's approach plates for ideas. The Japanese & Australian military IAP plates I've seen have some great ideas.

Appendix H

Comment To Question No. E27 Survey Number: 0939

I suggest a loose-leaf binder format.

Comment To Question No. E27 Survey Number: 0963

The one thing I like about NOAA charts is the fact that the whole book is revised. With Jeppesen I sometimes get too many at once therefore they set, sometimes, for weeks after their revision date before they get into my books.

Comment To Question No. E27 Survey Number: 0965

The ideal (but more expensive) solution is the one used by Jeppesen - loose leaf notebook format.

Comment To Question No. E27 Survey Number: 0966

Jeppesen style - single sheet in a binder. Only changed sheets need to be re-issued. Stuffing binders helps point out changed approaches.

Comment To Question No. E27 Survey Number: 0985

I don't have a better idea, yet... both government and Jeppesen packaging have their problems, but there should be a better way.

Comment To Question No. E27 Survey Number: 0991

Just subscribe to Jeppesens.

Comment To Question No. E27 Survey Number: 0994

Put STAR's in alphabetical order according to airport, not the STAR's name. (This way you don't have to look through the index & then find the STAR's throughout the book)

Comment To Question No. E27 Survey Number: 0996

As to packaging, we prefer the NOAA book type because of ease of revision.

Comment To Question No. E27 Survey Number: 0999

Plastic spinal binding and fewer changes for insignificant data.

Appendix H

Comment To Question No. E27 Survey Number: 1004

Someway to be able to flip through the charts without ripping the pages would be great. Also the chart holders by themselves are worthless with the current charts. Have to use clips or rubber bands to make them useful.

Comment To Question No. E27 Survey Number: 1005

I think you could package the approach plates better by putting them in a loose leaf binder - rather than releasing changes thru the TCN, just release each individual approach plate as required.

Comment To Question No. E27 Survey Number: 1009

They should allow the user a way of detaching the approach chart for use in the cockpit. Also a better method of providing SID & STAR update's as opposed to having to look thru a set of books.

Comment To Question No. E27 Survey Number: 1013

Print the approach charts individually and on more durable paper. They then could be grouped together using metal rings. This would also prevent having to print a completely new set of charts on a regular basis. Revised/outdated procedures could simply be distributed individually as required.

Comment To Question No. E27 Survey Number: 1026

Don't have a good solution since cost is a big factor for DoD, almost any improvement would be too costly (individual laminated pages) - they can however publish more volumes to cut down on the bulk of the individual volume.

Comment To Question No. E27 Survey Number: 1033

NOAA packaging is great from a user standpoint. Jeppesen revisions are a pain to keep up - lots of room for errors in filing. Often I find pilots get behind in revisions and fly with out-of-date approach charts because revisions are so tedious and time consuming - disciplinary action is not the answer, let's fix the problem!

Comment To Question No. E27 Survey Number: 1036

I would like to see non-standard information presented on the plate (similar to what Jeppesen does) instead of having to go looking for it.

Comment To Question No. E28 Survey Number: 0198

The electronic cockpit may be the wave of the future, but there are a lot of electro-mechanical cockpits that are going to be in service for years!

Appendix H

Comment To Question No. E28 Survey Number: 0256

Electronic displays may not be able to provide near as much information as an approach chart format.

Comment To Question No. E28 Survey Number: 0261

Perhaps with the coming of electronic displays for approach chart, color coding of the approach segments would segregate the information (e.g. Initial segment - Green, Final segment - Yellow, Missed App. procedure - Red).

Comment To Question No. E28 Survey Number: 0309

Excellent idea.

Comment To Question No. E28 Survey Number: 0376

Only if DoD aircraft will be equipped with electronic displays.

Comment To Question No. E28 Survey Number: 0492

All the charts and electronic displays should be standardized as should be all cockpit instrumentation.

Comment To Question No. E28 Survey Number: 0580

Electronic displays are already in the early stages of use by both airline and corp. aviation. I would love to update my charts electronically, as I already do with the INS up-dates. Therefore, YES!!

Comment To Question No. E28 Survey Number: 0585

Would be nice, if we did not have to keep doing all the chart changes, but what if the TV went out.

Comment To Question No. E28 Survey Number: 0596

When you consider that only a small % of todays aircraft are EFIS equipped, does not seem to be a pressing requirement.

Comment To Question No. E28 Survey Number: 0716

Let electronic system designers use their own creativity to design useful systems and layouts.

Appendix H

Comment To Question No. E28 Survey Number: 0740

Approach chart should be organized to quickly and easily provide position and maneuver to the pilot's compability with any particular instrumentation is far less important and may degrade the primary goal.

Comment To Question No. E28 Survey Number: 0757

Probably not enough electronic displays to warrant.

Comment To Question No. E28 Survey Number: 0798

Unaware of EFIS capabilities relating to display of approach chart symbology. Secondly, EFIS units are not now standardized.

Comment To Question No. E28 Survey Number: 0966

Yes - but don't loose track of the people who don't have these displays. Even though color printing may be more costly - the use of more colors (except red) could be used to help in the display (thus interpretation) of the information.

Comment To Question No. E28 Survey Number: 0985

I don't know what you have in mind, here, unlike, question 25 which I wasn't sure of, my gut feels here is that there are going to be too many displays to try to standardize the format to. And, by the time it's done the stand. approach will be R-vertical Nav of some kind.

Comment To Question No. E28 Survey Number: 0991

Yes, as long as you have graphic display capability. The planview & profile view are vital. The last thing we need is someone trying to mentally convert text to a mental image of planview/profile in the middle of a procedure turn in weather.

Comment To Question No. E29 Survey Number: 0004

Change of runways when parallel approaches are in use.

Comment To Question No. E29 Survey Number: 0006

When being vectored for an approach from an enroute descent, there has been confusion about which approach plate is being referenced (i.e., the final approach portion of the HI-TACAN in the high book or the TACAN approach out of the low book). Often there is a difference between the two approaches (e.g., Chase N.A.S. HI-TACAN 13R in high book vs. TACAN 13R in low book; final approach is identified off of different TACANS).

Appendix H

Comment To Question No. E29 Survey Number: 0008

Controller clearing you for approach and then giving you a descend to altitude below the minimum altitude for that approach segment depicted on the plate.

Comment To Question No. E29 Survey Number: 0019

Happens all the times. Too numerous to mention all of them. One that occurs frequently is an ATC call on a "low altitude alert" when I am at the depicted altitude on the IAP.

Comment To Question No. E29 Survey Number: 0021

When holding in unpublished pattern at FAF and cleared for the approach ATC, at times, expects me to proceed straight in (no proc. turn.). Often that leaves no time for effective approach set-up or stabilization.

Comment To Question No. E29 Survey Number: 0031

ATC controllers are not always clear when they issue a clearance for a holding-in-lieu-of-procedure-turn approach. If I am conveniently aligned for a straight-in, and if I don't have a lot of altitude to lose, I'd usually rather not fly the holding pattern (and I don't think ATC wants me to needlessly drill holes in the sky either). However, standard ATC practice seems to be to issue clearance for the approach without specifying clearance for a straight-in.

Comment To Question No. E29 Survey Number: 0033

ILS 36 Tilo FL. vectored below procedure turn attitude which is underlined on NOAA chart; ATC vectors to final instruction given too fast with altitude restrictions and report instructions given all at once; ATC instruction to proceed "direct" to an intersection - controller does not understand that this is not possible unless A/C equipped with R-NAV; ATC request to proceed direct to a compass locator when A/C is beyond reception range; ATC switch-over to alternate ILS at last moment (no time to test or check ident signal); and ATC switch-over from Approach Control to local tower given too late - tower has no time to issue proper warnings regarding local traffic on conditions (ILS 9 Samford FL.).

Comment To Question No. E29 Survey Number: 0040

On a training flight holding over a VOR and told to maintain VFR; then cleared for the VOR approach, I have considered myself required to maintain VFR, however, the controller said "once cleared you are on an IFR clearance, automatically." A great percentage of my instrument flying has been in a training environment. I have been a flight instructor for 40 years.

Appendix H

Comment To Question No. E29 Survey Number: 0044

There is considerable confusion when using ADF/NDB conflicting terminology between controller/pilot and controller/controller. Suggest standardized format be established and used.

Comment To Question No. E29 Survey Number: 0044

Vectored altitudes onto approaches sometimes differ from published initial approach altitudes and usually not compatible to MSA's.

Comment To Question No. E29 Survey Number: 0051

Vectors for spacing on traffic often conflict with approach procedures. ATC's have often issued instructions that differ completely from approach procedures.

Comment To Question No. E29 Survey Number: 0065

On penetrations, when the controller gives you an intermediate level off on the approach, it can force you to make a "screaming" descent to make published "hard" altitude restrictions. I don't like this, because I personally don't like having my nose buried close to the ground. It sets you up for violating "hard" altitudes close to the ground. I've had this happen to me coming into Maxwell AFB.

Comment To Question No. E29 Survey Number: 0077

Some of the conflicts are the need to review the associated approach chart and waste of time in selecting the new information.

Comment To Question No. E29 Survey Number: 0083

Being cleared to non-enroute fix that is not part of pertinent STAR or approach.

Comment To Question No. E29 Survey Number: 0085

Confusion over procedure turn depictions and instructions.

Comment To Question No. E29 Survey Number: 0114

On occasion we have been cleared to altitudes lower than published approach altitudes.

Comment To Question No. E29 Survey Number: 0119

Clearance to lower altitudes outside of DME's for the charted altitudes.

Appendix H

Comment To Question No. E29 Survey Number: 0121

Crossing restrictions on the FAC which result in having to cancel & reset the altitude hold (due to GS capture) and then the necessity of having to capture the GS from above (something many autopilots will not do).

Comment To Question No. E29 Survey Number: 0122

When following STAR procedures with speed restrictions or altitude restrictions and ATC orders different speeds or altitudes, how long are they effective and when does one return to the published criteria? LAX profile descents have this situation occurring constantly.

Comment To Question No. E29 Survey Number: 0129

Altitude assignments on radar vector for approach occasionally lower than MSA published for approach. You may or may not be able to determine exact relative position from FAF. (MVA's not published)

Comment To Question No. E29 Survey Number: 0143

I have received ATC instructions which violate IFR take off procedures.

Comment To Question No. E29 Survey Number: 0206

Minimum vector altitudes can be lower than MSA's, creating questions about terrain clearance.

Comment To Question No. E29 Survey Number: 0211

Altitudes at variance with published procedure.

Comment To Question No. E29 Survey Number: 0215

Departure from San Jose is still unclear as to whether or not you should stay within 3.5 to 4 miles of airport on down wind leg of San Jose for departure.

Comment To Question No. E29 Survey Number: 0216

Two instances where approach controller issued radar vector which would have caused localizer interception to take place inside of the outer marker and at an altitude 300' above the glide slope. Weather in both instances was solid overcast with ceiling of 500' and 700'. Both vectors rejected and different vectors with interception 3 to 4 miles outside outer marker were subsequently issued in both instances (ILS 31L Dallas Love and ILS 17 Adelison).

Appendix H

Comment To Question No. E29 Survey Number: 0221

Vector & altitude changes off the SID which reintersect the SID without specific instructions as to whether I am to take over again.

Comment To Question No. E29 Survey Number: 0226

1) Occasionally ATC will assign a holding fix that requires looking at the high altitude, low altitude & area charts to find it. 2) Some SID's are a night mare to plan and even more difficult to execute, particularly if TSTM's are present in the dept. course. 3) Some ATIS (e.g., SVC VOR) are very difficult to understand beyond 75NM and proper planning is difficult during the descent stage.

Comment To Question No. E29 Survey Number: 0242

"Cleared Approach" still appear to be different things to different people. Usually we are given no lower altitude and must wait until on a published segment of the approach. Most controllers do not seem to be aware of this.

Comment To Question No. E29 Survey Number: 0249

Flights into LAX; when approaching Lax going from the profile decent to the ILS approach 24 or 25 and have not received ILS approach clearance it is confusing whether or not to make the altitude restrictions for the expected ILS approach.

Comment To Question No. E29 Survey Number: 0250

ATC will assign an altitude lower than authorized on charts.

Comment To Question No. E29 Survey Number: 0264

Mostly on STARS with Alt. and speed changes that make the procedure more work.

Comment To Question No. E29 Survey Number: 0267

SID clearances are often given with a new initial altitude that is above the published SID altitude i.e., for Las Vegas MEAD-7 they say "cleared to _____ via MEAD-7 Departure - transition maintain 16000'. Now, does this really mean to go 16000 or does it means comply with the SID altitude and then to 16000. In LAS it means comply with SID, but in San Antonio, Texas they intend for you to climb unrestricted to the radio-assigned altitude. I know this only because I ask questions--an unfamiliar pilot could easily be misled. They (ATC) should say something like, "climb unrestricted to" or "comply with SID altitudes then maintain." POTENTIALLY HAZARDOUS.

Comment To Question No. E29 Survey Number: 0296

Often, freqs. used are not on chart.

Appendix H

Comment To Question No. E29 Survey Number: 0318

Jeppeson (approach plates) have a MSA where as the controller gives you his MVA.

Comment To Question No. E29 Survey Number: 0324

Minimum vectoring altitudes are not shown and may conflict with minimum sector altitude.

Comment To Question No. E29 Survey Number: 0337

I've noticed several times that ATC won't allow a complete procedure at uncontrolled airports in radar or non-radar environments.

Comment To Question No. E29 Survey Number: 0339

While being vectored for the approach the assigned altitude may conflict with the MSA for the area.

Comment To Question No. E29 Survey Number: 0350

With standard instr. departure charts, the departure control frequency applicable to your flight is not always easy to pick out.

Comment To Question No. E29 Survey Number: 0354

When your clearance states that you follow an approach and approach control then modifies the approach procedure - sometimes causes unnecessary confusion.

Comment To Question No. E29 Survey Number: 0355

"Low altitude alerts" are often generated when a proper letdown to MDA is expeditiously accomplished.

Comment To Question No. E29 Survey Number: 0382

Terminology used by "new" controllers.

Comment To Question No. E29 Survey Number: 0408

Often ATC issues holding instructions slightly different than depicted on charts. It would be simpler if they just said "hold as depicted."

Comment To Question No. E29 Survey Number: 0452

Timed approaches from holding pattern entry.

Appendix H

Comment To Question No. E29 Survey Number: 0487

Departure instructions (climb runway heading vs. intercept radial). Descend below minimum alt. for sector.

Comment To Question No. E29 Survey Number: 0488

ILS R/W 10 @ MSY - charted FAF altitude is 2,100' but approach gives an alt. of 2,000'!

Comment To Question No. E29 Survey Number: 0490

Transitioning from STAR to approach chart I have received clearances such as "intercept the localizer" without being established on a published approach segment (e.g., while still on the STAR and not within published limits of the approach procedure).

Comment To Question No. E29 Survey Number: 0578

Been told to maintain altitude to the marker which puts me well above the glideslope, rather than being allowed to intercept the glideslope outside the marker. This was very common at one time, but you see less of it now.

Comment To Question No. E29 Survey Number: 0579

From time to time a controller will assign you an altitude for initial approach that is slightly different from that which is published.

Comment To Question No. E29 Survey Number: 0591

Many approaches in radar environment are typically flown not as published but as radar vectors to final approach course and often the published IAF's do not apply. It is, indeed, ATC's practice to issue vectors. Perhaps "EXPECT VECTORS" or similar language should be noted on the plate.

Comment To Question No. E29 Survey Number: 0595

I have been assigned lower altitude than shown on the chart. When questioning this, I was informed that the lower altitude assigned was OK in positive radar environment.

Appendix H

Comment To Question No. E29 Survey Number: 0602

Recently upon executing a missed approach we were told to "Maintain 3000'", and proceed to our alternate where, upon reaching, we were "cleared for approach". The 3000' altitude we were maintaining was below any of the prescribed altitudes for an initial approach segment. Since we were above the MSA of 2400' of our alternate airport, we felt safe. We were within a radar environment until we began each approach.

Comment To Question No. E29 Survey Number: 0603

Frequencies used that are not on Approach Chart.

Comment To Question No. E29 Survey Number: 0606

Generally a discrepancy between assigned altitude and initial approach altitude on the chart. I cannot recall a particular airport or approach but I have seen this.

Comment To Question No. E29 Survey Number: 0607

We were given a localizer approach (glide slope out of service) for 28L in SF0. This requires descent to MDA after outer marker. MDA is quite away below glide slope when farther out. This triggered a low altitude alert on ATC radar and they were most upset with us for flying the MDA rather than a visual glide slope by looking out the window.

Comment To Question No. E29 Survey Number: 0610

In reference to E29, the only comment I have is the lack of pilots knowledge and understanding of a visual and contact approach. When ATC clears you for a visual approach, you are "NOT" #1 for the airport. With this misunderstanding and lack of requested position reports, it could cause problems for a VFR tower.

Comment To Question No. E29 Survey Number: 0616

Holding pattern instructions not always compatible with pubs.

Comment To Question No. E29 Survey Number: 0618

ATC clearances often in conflict with SID's and STAR's and aircraft performance limits. Controllers need education as to the parameters with which 121 transport aircraft operate.

Comment To Question No. E29 Survey Number: 0620

Lower altitude clearance issued than chart would indicate allowable.

Appendix H

Comment To Question No. E29

Survey Number: 0625

At (PQI) Presque Isle, Maine Radar Service is provided by Loring AFB. I'm told by the controllers that their MVA is too high for the ILS procedure at PQI because of an oil burner route - It's about impossible to have a stabilized approach. The approach should be altered or the Air Force should comply with ATC approach gate criterion. This is the only place this has happened consistently.

Comment To Question No. E29

Survey Number: 0640

Mostly crossing altitudes which differ from those published.

Comment To Question No. E29

Survey Number: 0644

Being sent from an approach to a fix shown on a departure, or vice versa, or to a fix shown on another approach.

Comment To Question No. E29

Survey Number: 0648

Usually a deviation for traffic that makes a normal profile LOC/GS intercept difficult. Ex. requires excessive workload to position for approach such as slowing too much, too great an intercept angle, KEEPING THE ACFT TOO HIGH - TOO LONG, etc.

Comment To Question No. E29

Survey Number: 0654

Was cleared for approach but to maintain 700' above the min. altitude at outer marker (IAF). Since I was on a straight-in approach path, requested straight in and relief from altitude restriction. Cleared for approach but restriction was maintained. Was impossible to accomplish straight in ILS as cleared. Had to fly teardrop procedure turn. Don't know if procedures by ATC, IAP's or controller lack of understanding caused the lash up but procedure as cleared was nearly impossible. Need to find a way to clear a straight in to capture ILS localizer & GS. and ride it down from somewhere outside OM or IAF.

Comment To Question No. E29

Survey Number: 0660

MDW: The published departure for Chicago Midway Airport is at variance with ATC instructions and desires. Instruction contrary to the published procedure are frequently NOT given.

Comment To Question No. E29

Survey Number: 0665

Most of the time the App. and Dep. control frequencies are different from the ones depicted.

Appendix H

Comment To Question No. E29 Survey Number: 0666

I have had numerous instances where ATC would keep us too high, until it was almost impossible to make the approach, when turned over to the control tower.

Comment To Question No. E29 Survey Number: 0669

ATC issues lower altitudes than the published MSA on our approach plate.

Comment To Question No. E29 Survey Number: 0671

When a procedure turn is depicted, ATC frequently expects a "straight-in" even though there is no "NoPT" published.

Comment To Question No. E29 Survey Number: 0686

When inbound in holding and cleared for approach and the holding course is the same as procedure turn/track controllers seem to think you will continue straight-in Vs flying procedure track.

Comment To Question No. E29 Survey Number: 0692

Yes, sometimes I have been asked to descend below safe vectoring altitude.

Comment To Question No. E29 Survey Number: 0694

Some confusion exists regarding minimum altitudes while on vectors to the FAF it often differs from what is published.

Comment To Question No. E29 Survey Number: 0695

On PAGE 10-3A Chicago Ill Midway Departing RW 4L or 4R "climb to 2400' on 090 degree Heading before turning North." When the runway is taken the tower gives a turn North after take off. We inquired about the note on the SID and they did not want us to turn to 090 degree. Had we not inquired there could have been a problem.

Comment To Question No. E29 Survey Number: 0698

On some arrivals, one has to use several charts to figure the intersections, etc.

Comment To Question No. E29 Survey Number: 0709

Descent clearances to minimum vectoring altitudes which are lower than any altitudes displayed on charts, is very unnerving.

Appendix H

Comment To Question No. E29 Survey Number: 0712

Quite often one controller will issue speed changes and when handed off to the next guy its a whole new ball game with up to 100 kts. change in speed requested (especially inbound in the beginning and final approach phase).

Comment To Question No. E29 Survey Number: 0714

Too often ATC request an aircraft to stay at a high altitude till crossing an IAF just to keep an aircraft in radar coverage. I have seen this cause confusion with some pilots because they are given an altitude different from what they are expecting according to the approach chart. If ATC has developed a practice such as this a notation as such might be helpful in alerting pilots to this possibility without changing the IAP.

Comment To Question No. E29 Survey Number: 0716

When to descend.

Comment To Question No. E29 Survey Number: 0717

1. Receiving an amended clearance 20 sec. after departure and then trying to locate intersections, etc. while entering cloud. 2. Receiving altitude assignments below MSA while being vectored for approach and not on any terminal route. The controller is assigning minimum vectoring altitudes, but these are not available to me. What do I do if communications are lost?

Comment To Question No. E29 Survey Number: 0723

Vectors for delay put one in a "black hole." Almost always, they work you out of it.

Comment To Question No. E29 Survey Number: 0727

Specifically, confusion is generated by ATC when they modify SID's, STAR's, and Approach Proc. Should be specific about requirement (procedure) to re-intercept.

Comment To Question No. E29 Survey Number: 0728

Often, in SID/STAR/APC - Radar vectors supersede, making the arcing procedures depicted irrelevant.

Comment To Question No. E29 Survey Number: 0729

The abuse of charted visual flight procedures by ATC, by clearing pilots to fly them while still in IMC. DCA is one of the most frequent violators, followed by LGA.

Appendix H

Comment To Question No. E29 Survey Number: 0734

One situation is to be cleared for an ILS approach but to maintain some assigned altitude. Another problem is when given a vector to an ILS final and you intercept the glide slope before the localizer comes off the side (or is still fully deflected.)

Comment To Question No. E29 Survey Number: 0735

Denver & LAX profile descent charts & ATC clearances often are confusing and misleading.

Comment To Question No. E29 Survey Number: 0745

Approach control frequencies used in the Norfolk, Virginia area differ vastly from those depicted on either civilian (Jepp), NOAA or DoD plates.

Comment To Question No. E29 Survey Number: 0747

When holding pattern is part of approach.

Comment To Question No. E29 Survey Number: 0750

Conflicts in routing changes and altitudes depicted.

Comment To Question No. E29 Survey Number: 0757

Most commonly at uncontrolled airports, i.e., straight in or circling approach shown but they tell you to go to VOR first, etc. (you're already at proper altitude).

Comment To Question No. E29 Survey Number: 0758

Holding procedures are not understood by controller and pilot sometimes. I have been in approach situations which unlike enroute holding requires immediate understanding of A/C position and direction to turn to enter procedure turn or holding pattern and have been given delayed or unclear instructions from ATC.

Comment To Question No. E29 Survey Number: 0760

Controllers are constantly giving illegal clearances, and requesting deviations from approach charts and SID's and STAR's.

Comment To Question No. E29 Survey Number: 0773

Being assigned a lower altitude in mountainous terrain than depicted on approach chart.

Appendix H

Comment To Question No. E29 Survey Number: 0780

Often have receive instructions to hold in different areas than published. Have also been given restrictions well after I have begun the approach procedure.

Comment To Question No. E29 Survey Number: 0791

A good many holding instructions do not comply or match published procedures.

Comment To Question No. E29 Survey Number: 0793

During vectors below the sector or procedure turn altitude. On missed approach - often given turns while still below first missed approach altitude, i.e., climb to 800' then turn left, etc.

Comment To Question No. E29 Survey Number: 0795

When ATC assigns a speed, does that eliminate the speed on a STAR chart.

Comment To Question No. E29 Survey Number: 0798

It would be useful to have some information on MVA relative to MSA.

Comment To Question No. E29 Survey Number: 0800

Many times the IFR departure procedure is ignored for the convenience of the controllers. Noise abatement for our aircraft requires a reduced power setting resulting in slower speed and rate of climb. Departure doesn't want to be bothered with this. If they don't want noise abatement then remove notes. If any airport wants noise abatement or curfews it should be so noted on the approach plate. Visual approach patterns for noise purposes could be on the airport map.

Comment To Question No. E29 Survey Number: 0806

Sometimes at Kelly AFB they clear you for TACAN 33 at 2500' when there is a hard 2600' altitude for the final approach point.

Comment To Question No. E29 Survey Number: 0807

ATC routinely clears an aircraft for approach on an ILS at an MVA which is below glidepath intercept altitude depicted on the chart. Additionally it is routine for aircraft on low altitude approaches to be cleared for an instrument procedure from an MVA that is below altitudes depicted for IAF procedure turn alt., step down, etc.

Appendix H

Comment To Question No. E29 Survey Number: 0811

We still have not really answered the question of altitudes when "cleared for approach."

Comment To Question No. E29 Survey Number: 0823

Difference in vectoring and Sector altitudes.

Comment To Question No. E29 Survey Number: 0829

Sometimes approach clearances are given and the exact procedure is then unclear.

Comment To Question No. E29 Survey Number: 0831

Many times a modification to the departure/arrival clearance causes confusion in the cockpit. In areas which do not have published dep. proc. the Jeppesen charts have very poorly written departure instruction and cause confusion in the cockpit.

Comment To Question No. E29 Survey Number: 0838

The ATC request always takes priority providing terrain clearance, etc. requirements are met.

Comment To Question No. E29 Survey Number: 0842

PHX Freeway Visual Runway 8R - Vectored for the Freeway Visual. Inside 13.1 DME off Salt River VOR. on a right or left base. Approach says "cleared for the Freeway Visual to 8R." Do you correct out to cross 13.1 DME at 3100' or do you intercept the inbound course inside 13.1 DME at 3100'?

Comment To Question No. E29 Survey Number: 0843

Some confusion if not establish on approach when cleared for approach, as to which action to follow.

Comment To Question No. E29 Survey Number: 0845

Confusion usually occurs when vectored using minimum vector altitudes as related to depicted altitudes for segments of approach.

Comment To Question No. E29 Survey Number: 0849

Lots of unlisted frequencies several "final" controllers especially in L.A. Basin; vectoring thru the localizer without prior warning; and all sorts of altitude conflicts.

Appendix H

Comment To Question No. E29 Survey Number: 0850

Have been assigned altitude lower than displayed on chart over mountains. (ATC problem). Have also been cleared from present position to final approach fix when there was no way to get there direct.

Comment To Question No. E29 Survey Number: 0853

Often arrival instructions are entirely too detailed and lengthy. For example, arriving into San Antonio, you always have speed restrictions, altitude restrictions at various DME's and yet, these lengthy instructions are not published anywhere. If the procedure was published, no need for lengthy and detailed radio calls. Profile descents should be the norm. at most airports!

Comment To Question No. E29 Survey Number: 0854

Nothing major but last minute changes to the departure frequency, transponder codes or altitudes.

Comment To Question No. E29 Survey Number: 0863

When at intermediate cruise or during descent, a clearance for the approach does not constitute a clearance to descend below last cleared altitude when you are not on a published segment of the approach. Many controllers are not aware of this and simply clear you for the approach.

Comment To Question No. E29 Survey Number: 0866

ATC issues altitude amendments that (create) almost impossible rates of descent to complete approach and it also issues different & confusing routing without informing pilot of controller's intention.

Comment To Question No. E29 Survey Number: 0876

ATC clearance to an altitude lower than the minimum safe altitude for a given sector.

Comment To Question No. E29 Survey Number: 0879

I have been given departure instructions which conflicted greatly with local SID's. The problem was that along with the departure instruction we were given routing on a SID plate. Where does the departure instruction stop and the SID start? (Kadena AB, OK). "TACK 20, climb runway heading to 2 DME turn left 160 degrees, climb to FL 150 on Pacific Transition."

Comment To Question No. E29 Survey Number: 0887

Altitudes to descend to.

Appendix H

Comment To Question No. E29 Survey Number: 0888

The most confusion has been over procedure turn requests.

Comment To Question No. E29 Survey Number: 0896

Cleared approach but not on a published section of approach and not given clearance to proper altitude.

Comment To Question No. E29 Survey Number: 0902

Confusion created by changes - What is my routing after? Should I continue the SID? Use of low altitude intersections in the high altitude environment. The stupid intersections names that all sound alike.

Comment To Question No. E29 Survey Number: 0910

Yes, pilots routinely receive clearance while in terminal area, to fixes not shown on approach charts or terminal chart.

Comment To Question No. E29 Survey Number: 0913

Radar vectors below MSA.

Comment To Question No. E29 Survey Number: 0937

Occasionally when a holding pattern is depicted on the approach course and the IAF is on one end of the holding pattern and the holding fix is on the other ATC, will send you to the IAF to hold instead of the holding fix. Confusion as to where you should be holding is the result.

Comment To Question No. E29 Survey Number: 0938

Sometimes a "Holding-in-lieu-of" approach holding depiction is not real dark and not recognizable as such. Perhaps "holding-in-lieus" could be marked better/labeled.

Comment To Question No. E29 Survey Number: 0943

I was told to hold as published and there was no published holding pattern.

Appendix H

Comment To Question No. E29

Survey Number: 0965

The MAC mission sends us all over the world and requires daily interface with the ICAO civil airline system. DoD's failure to publish all approaches to an airport is inexcusable. TERP's be damned - if 707's, 727's and 747's can safely fly an approach, so can I. I have been cleared for the ILS in Dhahran, Saudi Arabia when I did not possess a copy of the procedure - even though my DoD book had many other approaches printed in it. Likewise, I was once cleared for a SID from Lisbon, Portugal that I did not have and did not even know existed. The usual answer to this dilemma is advise to "coordinate an alternate procedure". You try explaining to a Saudi controller why you can't do what everyone else in the air is doing! I would prefer to completely divorce MAC from DoD navigational products and use Jeppesen procedures exclusively. DoD procedures could be used by exception when Jeppesen products for a particular airport were not available.

Comment To Question No. E29

Survey Number: 0985

Only when ATC wants you to do a procedure that isn't in the Gov't book. Better to have all or none for a given airfield.

Comment To Question No. E29

Survey Number: 0991

When MVA has been lower than MSA. Jeppesen products, although much more cluttered than DoD/NOs products, are the best products. The Jepps all go into one binder, the enroute charts are more informative as are the approach charts, and all the supplemental information is in the same book as the charts.

Comment To Question No. E29

Survey Number: 0998

Relates to issuing clearance altitudes lower than those shown on charts. The controllers have information on minimum altitudes for clearance that pilots don't have.

Comment To Question No. E29

Survey Number: 0999

On a procedural track IAP expected to fly straight-in when not specifically cleared straight-in.

Comment To Question No. E29

Survey Number: 1016

ATC will clear the aircrew for an approach, intending for the aircrew to fly a straight-in when USAF procedures require the full approach to be flown.

Comment To Question No. E29

Survey Number: 1017

Minimum vectoring altitudes in radar environment are well kept secrets and many times conflict with MSA, MEA's etc. It would be nice not to have this conflict.

Appendix H

Comment To Question No. E29 Survey Number: 1024

Perhaps, the most easily confused ATC instructions involve holding. In situations where published patterns are available, most pilots expect to use those patterns regardless of the type of holding. Less confusion would result if this were actually the intention of ATC.

Comment To Question No. E29 Survey Number: 1028

Most problems are with ICAO plates - arrival holding patterns that do not align for outbound.

Comment To Question No. E29 Survey Number: 1029

I will incorporate this question with D19 + D20 as ATC is generally the associated problem in these areas. ATC's request at times is unjustifiable, simply because of one pilots acceptance of a clearance does not make the situation right. Profile descents at some high density airports are in my estimation unsafe. One example is LAX.

Comment To Question No. E29 Survey Number: 1035

Receiving clearance for a particular SID and radar vectors in the same breath, approaches that incorporate mandatory altitudes for various segments - yet vectored to that segment at a different altitude.

Appendix I

Comment To Question No. GEN Survey Number: 0003

Eliminate the use of blue printing on government charts.

Comment To Question No. GEN Survey Number: 0037

We need better information about ARSA's on Mil. charts. Hi Alt. & Lo Alt. charts need morse code identifiers for Nav. Aids. What ever happened to the prototype charts that had geography & state boundaries on them.

Comment To Question No. GEN Survey Number: 0042

Really, approach books are pretty bad. I have 3000 hours and every time I get a new approach plate I need to spend an hour studying it, and then you are not absolutely certain you can fly it until you try.

Comment To Question No. GEN Survey Number: 0061

No problems with SID's or enroute charts. Approach plates can be improved by: 1) include GCA information on approach plates (not just in radar minima). 2) Altitude restrictions on "Profile view" of approach plates are hard to read at times.

Comment To Question No. GEN Survey Number: 0069

It would help if a pilot were included in the design phase of approaches, may be this is already standard procedure, but I think it would make approach plates more logical & straight-forward.

Comment To Question No. GEN Survey Number: 0088

Sectional charts need lat/long added for navigational facilities (for Loran - Omega - VLF systems).

Comment To Question No. GEN Survey Number: 0101

I am pleased to have the opportunity to comment and hope my input will do some good. I have long considered this subject one of the most confusing and demanding. I've learned to live with the problem and learned to sift and glean the information I need through work experience. Nevertheless, I still make mistakes and have grey areas regarding this information. (i.e., how long is the runway, again?) Hopefully all this will be simplified and improved in the future, in time for my retirement.

Comment To Question No. GEN Survey Number: 0112

I would like to see State boundaries depicted on the NOS low attitude Enroute Charts.

Appendix I

Comment To Question No. GEN Survey Number: 0128

Government approach charts are difficult to keep open. Any item used to keep them open also keeps you from changing approach charts quickly. Government charts have data sequestered all over the place, even in other books! Jeppesen has good placement of information but there is too much clutter with terrain items on the approach charts.

Comment To Question No. GEN Survey Number: 0129

Airport overviews have in some cases been decluttered too much of terrain features which could be useful for visual approach at unfamiliar airports.

Comment To Question No. GEN Survey Number: 0180

DoD charts could arrive in a more timely manner. They often arrive late.

Comment To Question No. GEN Survey Number: 0191

Even though specific approaches (types) are not mentioned, I would like someone to call me to discuss Microwave Landing Systems (MLS) and their uses. I think I have questions that should provoke a lot of interest and discussions.

Comment To Question No. GEN Survey Number: 0219

We are a government contractor and fly a multitude of civilian and military aircraft. As a result, we use both Jeppesen and DoD publications. In general we prefer the DoD approach charts because of clear, concise formats, other than the packaging. The Jeppesen approach charts seem more cluttered and more difficult to read. However, we prefer the Jeppesen's larger print for night time flying. We also prefer the DoD enroute charts because they display more info. including airfield locations. However, the thick paper makes them more difficult to use. We generally use DoD for high altitude and Jeppesen for low altitude and terminal area work.

Comment To Question No. GEN Survey Number: 0220

In my opinion the continuous need to revise information of a trivial nature causes an unsafe situation in itself. Jepp's are the worst, because they need continuous revision, especially in the private flying sector, revisions pile up and are often are not done. I recommend the government and Jepp. get together and establish quarterly dates on which all and any previous revisions or changes would become effective. On those dates complete new content would be sent to everyone and old content destroyed. All Nav. information would always be current.

Appendix I

Comment To Question No. GEN Survey Number: 0240

"Fold Out" charts (departure plates) are a hazard. First, they do not fit into protective cover; second, they are difficult to handle (clip to control column) in the cockpit.

Comment To Question No. GEN Survey Number: 0241

There are no straight yes or no answers to many of these questions. For instance #20 San Jose, CA creates excessive workload and (hands) in the cockpit, others are OK. This also applies to charts being cluttered. One of the worst problems is the cluttered high altitude Jeppesen charts.

Comment To Question No. GEN Survey Number: 0245

NOAA charts supply you with needed information whereas Jeppesen supplies you with this but also includes nice to know information.

Comment To Question No. GEN Survey Number: 0250

An ILS with DME should be stated at the top of the plate. Now you must search the entire chart to find it. SIDs are much too complex & wordy: Ditto for missed approach procedures.

Comment To Question No. GEN Survey Number: 0253

Haven't used NOAA charts since I was instructing but always found them much less clear & logical. Standardization would be a good idea but only if the Jepp. format prevailed. Don't like binding approach plates in a book format.

Comment To Question No. GEN Survey Number: 0257

All approach charts should display radial/distance from an appropriate VOR/DME (VORTAC) at the final approach fix (OM etc.) for use with RNAV equipment. Although RNAV is not a part of the procedure, it can be an invaluable aid in maintaining orientation and configuring the aircraft for expending final approach passage. Currently, some chart depict a radial but no range data. The RNAV computer has become a valuable tool, not only for enroute navigation but for use as discuss above in the terminal and approach area as well. In other words with a waypoint established at the final descent fix the pilot can more effectively manage his aircraft. I could expand upon this in great detail.

Comment To Question No. GEN Survey Number: 0265

Your questionnaire seems to be directed mainly at workload problems. I believe the most significant weakness in the ATC system today is cockpit workload in communicating with ATC. This function completely dominates ones time & attention. I frankly don't see how anyone can handle single pilot IFR, especially in high density areas.

Appendix I

Comment To Question No. GEN Survey Number: 0293

This questionnaire was answered with references to Jeppesen Charts. We (Company Pilots at Philip Morris, Inc.) use NOS charts for USA. But Jeppesen for Canada, Central & South America and Europe.

Comment To Question No. GEN Survey Number: 0294

SID's are too long, involved and complex. There is too much clutter on approach plates.

Comment To Question No. GEN Survey Number: 0316

I seldom use government produced approach charts; however, I learned instrument procedures by government charts and have no difficulty interpreting the information. I prefer government charts (NOAA) to Jeppesons because of their clarity.

Comment To Question No. GEN Survey Number: 0319

Suggest your study include presentation of new data which will become important in the use of MLS facilities i.e., 1. Glide slope angle. 2. Azimuth angle. 3. Stair step - (altitude). 4. Side step - (Azimuth offset).

Comment To Question No. GEN Survey Number: 0342

Lat/long. should be included for all VOR's and intersections on all charts.

Comment To Question No. GEN Survey Number: 0345

Gov't charts should be separated and not bound. ATC frequently requests descends below MSA and rarely follows SID's or STAR's.

Comment To Question No. GEN Survey Number: 0347

ATIS, Approach, TWR, GND, should be on all approach pages. - Dep. ATIS, Clearance, GND, TWR. Dep., should be on all SID's. LA Center clears aircraft for J-10 initially instead of 29 Palms Transition supposedly because of problems related to initial approach fix clearances. I fail to see the problem since during lost comm. you can be considered cleared to any initial approach fix. There are other discrepancies including the fact that the next sector clears you for the transition which puts you in the same position for lost comm. or any other problem, may be I was misinformed as to the problem since the center person I spoke to didn't understand either!

Appendix I

Comment To Question No. GEN Survey Number: 0367

I feel the Jepp. approach charts and associated info. are well organized, adequate, and clearly presented. Any attempt to change format or content could only serve to create confusion!

Comment To Question No. GEN Survey Number: 0380

A special holding device should be manufactured to accommodate the approach plates.

Comment To Question No. GEN Survey Number: 0394

ATIS freqs. should be listed on SID & STARS. SID & STARS are seldom flown to completion of procedure--usually short cut by controller. Government charts very awkward in cockpit.

Comment To Question No. GEN Survey Number: 0398

I find Jeppesen Charts are adequate and easy to read.

Comment To Question No. GEN Survey Number: 0401

Need INS coordinates for approach nav. aids & OM/dog-leg turn points/intersections, etc.

Comment To Question No. GEN Survey Number: 0461

ATC sent me through final approach course without knowing it.

Comment To Question No. GEN Survey Number: 0468

Need to include information on TCA--vertically and laterally. Also approach charts should have or be spiral bound so they will stay open.

Comment To Question No. GEN Survey Number: 0472

Information on different approaches have small ball flags around numbers, this info. needs asterisk symbol for immediate eye contact to note changes and/or restrictions.

Comment To Question No. GEN Survey Number: 0473

Jeppesen needs an index of approaches. Presently there is no way to tell if all of the approach plates are present or current.

Appendix I

Comment To Question No. GEN Survey Number: 0477

Most often in VFR WX need more info. to pick up airport. Charts are hard to fold--paper too fragile. Need better paper.

Comment To Question No. GEN Survey Number: 0485

STARS for a certain airdromes (i.e., DFW) should be grouped in consecutive pages, not scattered throughout book.

Comment To Question No. GEN Survey Number: 0489

1. Need more terrain/obstruction feature info. 2. Need more info. on SID departure fixes i.e., freq's and Lat/Long. 3. Need Lat/Long on all STAR fixes.

Comment To Question No. GEN Survey Number: 0526

Whenever a bearing is given, why not give the associated DME that defines the fix, i.e., Jeppesen (11-2) St Louis, MO, ILS 12R. The DME is not at the field. Defining NAIRN, DRAWG & OBLIO with a DME off ST Louis VOR in addition to the bearing would be very beneficial. The same can be found on many STAR's.

Comment To Question No. GEN Survey Number: 0532

Airport elevation, final heading, altitudes, DH, & MDA should be in bolder print.

Comment To Question No. GEN Survey Number: 0547

As much trouble as it is to do Jeppesen revisions. I will continue to use them because of the information the provide.

Comment To Question No. GEN Survey Number: 0563

Revisions are time consuming and have risk of misplacing a chart. How about this: If any approach chart changes, reissue the complete set for that airport. Also would like a Hi-performance coverage for Canada (Jepps.).

Comment To Question No. GEN Survey Number: 0586

I use only Jeppesen charts, I do not use any other navigation or approach charts. I like the Jeppesen charts just as they are, and I hope there are no massive changes in the future. My main problem: SID's and STAR's at airports other than O'Hare (O'Hare does it right). The problem is ATC making enroute change to clearances, SID's, and STAR's. It is seldom that I don't have changes to my flight plan (while enroute). It seems that the system is gearing for a 2 pilots operation, and forgets that some of us don't have co-pilots (C-414). The system is good, but sometimes the controllers don't give us the time we need to do what they want.

Appendix I

Comment To Question No. GEN Survey Number: 0587

Do not presently use government approach charts, but from past experience the charts would be more manageable in the cockpit if loose leaf form. (Also gov't would save money on publications).

Comment To Question No. GEN Survey Number: 0591

When change notices are published, the reasons for the change should be identified (i.e., what's different).

Comment To Question No. GEN Survey Number: 0603

Jeppesen charts are organized and information is portrayed in an intelligent fashion. NOAA charts are not organized, have little information and are hard to use.

Comment To Question No. GEN Survey Number: 0604

As an additional comment, I'm quite happy with INS. APP. & Dept. procedures. Most of the credit for this goes to the controllers. However, I'm comfortable with the Jeppesen plates and find them relatively easy to use.

Comment To Question No. GEN Survey Number: 0605

The temporary taxi charts for Chicago O'Hare are very difficult to read and understand.

Comment To Question No. GEN Survey Number: 0609

Jeppesen Charts are much more informative than Gov't Charts.

Comment To Question No. GEN Survey Number: 0625

I don't feel that I've been of much help. I've used Jepps for 23 years and their presentation seems just fine, but it may be that I've been brainwashed. While flying in the ARNG we used DoD/Flip--I liked the airport/runway/lighting diagram on the front of the plate, but at night it was too small. Can't have everything I'm told.

Comment To Question No. GEN Survey Number: 0630

Too much small print.

Appendix I

Comment To Question No. GEN Survey Number: 0637

Questions 1, 4, 6 and 7 are answered with specific reference to TCA depictions. Unless one is destined for an airport, the NavAid of which forms the center of and defines the TCA, then it is difficult to determine one's position (and thus altitude limits) within the TCA. Inclusion of the various LOC Front Course/Back Course symbols of airports within the TCA would aid in fixing one's position within the TCA.

Comment To Question No. GEN Survey Number: 0644

Perhaps a LARGER chart, located above the side console, would contain all relevant information for the area, big enough to see at a glance. All types of charts are hard to read in the dark and have very small print.

Comment To Question No. GEN Survey Number: 0645

On timed approaches: should include a "time window" to allow a 500 fpm descent from MDA to runway BEFORE reaching MAP.

Comment To Question No. GEN Survey Number: 0653

I am a highly experienced pilot in the Mid Atlantic area. I know most of the approaches that I go into by memory, not that I rely on memory! But I tend to forget that strange airports and long days are tiring and a strain. I suspect in today's "vectors to final, etc." there is too much information (presented) unless you have to do it all and under duress. Good luck on the project. Take a look at the departure procedure for runway 9 (I think) at Roanoke. Suppose you make the left turn too early - would you by error make a climbing left 360 to come back to the radial.

Comment To Question No. GEN Survey Number: 0655

Many of the questions asked do not have a Yes or No answer but fall into a gray area that provokes numerous answers. Although this survey may indicate areas of concern a better approach to the problem would be an open seminar on the subject.

Comment To Question No. GEN Survey Number: 0662

In general, approach plates are good. However, enroute charts are too cluttered.

Comment To Question No. GEN Survey Number: 0676

Print the minimum vectoring altitude and visual approach minimums for each approach.

Appendix I

Comment To Question No. GEN Survey Number: 0676

All approach charts should be the same scale.

Comment To Question No. GEN Survey Number: 0678

I would very much like to be advised of the result of this survey. Thanks.

Comment To Question No. GEN Survey Number: 0680

Having used Jeppesen and NOS extensively, I prefer the format and indexing of the Jepp. i.e., alt. data, mins. etc. Also I like the inclusion of airport current variation listed, due to using nav. computers. That data is hard to find, otherwise NOS only lists var. on major airport diagrams and then it'll say "Var. 14.2E, July 1981 Annual rate of change 0.1 degree W." What does that mean? Do you add the yearly change to E. value when it moves West, or subtract from the East value because it moved West? Would also like the NOAA to have Lat/Long to 1/10th or secs., if appropriate (I use Jepps. for in-flight and planning but keep a set of DoD home for flight planning.)

Comment To Question No. GEN Survey Number: 0689

At some airports (SFO, MDW) its hard to look outside when you are changing nav. frequencies, departure frequencies especially in high performance aircraft (G-II LR-55 F-10).

Comment To Question No. GEN Survey Number: 0695

Military background; I'm use to DoD pubs. & high alt app. plates. I'm still getting use to Jepps.

Comment To Question No. GEN Survey Number: 0697

Minimum sector altitudes referencing an NDB are almost useless. MSA circle diameter should always be shown. Distance to the airport should be able to be determined readily on STAR's and profile descents. Some SID's are too complex especially in areas of IFR-VFR and jet/light aircraft mix, i.e., SJC Loupe Four departure SID. Ground and tower frequencies should be on SID's.

Comment To Question No. GEN Survey Number: 0699

I have two "gripes" with the NOAA Charts: A. Lack of RNAV. information for the airport. B. Lack of a decent airport diagram like Jeppesen has.

Comment To Question No. GEN Survey Number: 0700

I use NOAA Enroute Charts (High Alt.) and not Jeppesen Enroute Highs because NOAA gives you more info. Larger and less cluttered than Jeppesen.

Appendix I

Comment To Question No. GEN

Survey Number: 0703

I have been using Jeppesen for so long they come easy for me. I know where and at what to look at. If there are significantly changed there would be a short learning time required to become comfortable again.

Comment To Question No. GEN

Survey Number: 0704

It's been many years since I used Government Charts but believe they lag behind Jeppesen in correcting "human element" problems that make a chart easier to use. Jeppesen is a far better standardized chart to use and have as a model to standardize other charts to. Government charts should be loose leaf. It's hard to clip a bound book to a control yoke, hard to bend it back far enough to read all the information shown and hard to keep open to a given page.

Comment To Question No. GEN

Survey Number: 0705

The DoD top left corner is sometimes hard to read when folding back the preceding page (i.e., Freq.).

Comment To Question No. GEN

Survey Number: 0708

NOAA approach charts should list VOT where available.

Comment To Question No. GEN

Survey Number: 0709

Copying ATIS information is a very mental frustrating task, due to the fact that all controllers record the information at a speed which is impossible to copy in writing without listening to the entire broadcast two and sometimes three times. Very time consuming.

Comment To Question No. GEN

Survey Number: 0711

From using Jeppesen charts for so many years I favor the Jeppesen chart format more useful and easier to find information, however I like the NOAA charts because they have the frequencies and runway information available on every approach chart. I did find some problem in change over to the NOAA charts after so many years of using Jeppesen charts.

Comment To Question No. GEN

Survey Number: 0715

Government charts have not included R-Nav. coordinates for each airport, which I use daily. To combat this I need to bring another book to find this information. Very important: keep the present system of no revisions except throw old book out and replace with new book (my main decision to use government charts instead of Jepp's.).

Appendix I

Comment To Question No. GEN Survey Number: 0721

All SID's which utilize runways with specific "Engine-Out" procedures should be the same (headings, altitudes, etc.). Currently an engine-out procedure will differ from the SID.

Comment To Question No. GEN Survey Number: 0724

I use only Jepp. charts. Flying international routes, the biggest problem is nomenclature, abbreviations, and overly complex procedures. I fly for Transamerica Airlines. The greatest problems occur going into places we don't go into frequently and that have complex procedures.

Comment To Question No. GEN Survey Number: 0732

NOS's charts are reasonably good considering the tremendous amount of information included.

Comment To Question No. GEN Survey Number: 0736

TCA charts are sometimes very difficult to interpret. They require considerable time of study with the head in the cockpit and not outside looking for traffic.

Comment To Question No. GEN Survey Number: 0737

Missed approach info is often too involved during a critical phase of flight.

Comment To Question No. GEN Survey Number: 0737

Too much information, primarily obstacle information is presented on Jeppesens resulting in distracting material. SID's inst. departures are frequently so complicated as to require attention placed on the chart inside the cockpit; same for arrivals.

Comment To Question No. GEN Survey Number: 0738

ATIS Frequency should be on each arrival chart where applicable. (Not the approach charts.) Where arrival charts are available, one normally listens to the ATIS while using this chart, not the approach chart. You must leave the chart you are using to thumb through to find the frequency, then thumb back again to find the arrival chart you were using.

Comment To Question No. GEN Survey Number: 0739

Make charts with only the important information on them and in nice big bold letters and clearly visible.

Appendix I

Comment To Question No. GEN Survey Number: 0741

Jepp charts offer more useful data to the pilots particularly at large complex airports such as ORD, ATL, JFK, DCA etc. than DoD charts.

Comment To Question No. GEN Survey Number: 0745

NOAA, to greater extent than do the DoD plates, show better expanded or full page depictions of the airport plans and taxi routes. While DoD aircraft do not always have access or need to use civilian terminal, the DoD plates show almost no detail of airport diagrams. A DoD aircraft is at a distinct disadvantage at a civilian airport when the controller issues taxi clearances using taxiway designators such as "Alpha" "Bravo", etc. DoD plates show almost no detail. Jeppesen is the absolute winner in this area.

Comment To Question No. GEN Survey Number: 0760

I've been using these things so long that I've become very accustomed to using them. However, there is one glaring irritant that continually causes problems and that is with the short term changes that occur such as FDC Notams, Approach chart changes in the ATC section and then the regular notams. There should be ONE place and ONE place ONLY that the pilot should have to check for changes to approach charts or minimums, etc.

Comment To Question No. GEN Survey Number: 0763

Go-around procedures need to be simplified. Terrain/obstacle information could be more detailed, but presented in a lighter color blue so as not to clutter approach data, Cat II approaches should have backup info. available.

Comment To Question No. GEN Survey Number: 0768

All the approach charts should become standardized using like symbology, it would cut down the confusion and simplify the whole situation.

Comment To Question No. GEN Survey Number: 0777

Having flown in Canada, their approach plates are much thinner and spiral bound. This makes them much easier to hold and increase the possibility of holding them secure while executing an approach. I like having PAR/ASR minimums on ILS approaches for quick references. Some approaches, especially USN are non-standard and create confusion over exact procedure. ex. Imperial Beach. Too cluttered and hard to interpret DH and missed approach point. AFR 51-37 should have more explanation of Terps criteria.

Appendix I

Comment To Question No. GEN Survey Number: 0779

Generally good questions - with increased workload in cockpit and increased terminal traffic it is necessary to package standardized & essential information only. There's no time for nice to know/confusing/conflicting information at 110-175 KTS, IMC w/reported traffic. Thank you for this attempt to standardize presentations and substance of approach material.

Comment To Question No. GEN Survey Number: 0790

Jeppesen charts are by far the easiest to use. The only disadvantage to Jeppesen is their updating system is very tedious.

Comment To Question No. GEN Survey Number: 0791

Jeppesen should publish a book for quick reference similiar to DoD's IFR & VFR supplement book. I miss the supplement in civilian flying for quick reference.

Comment To Question No. GEN Survey Number: 0793

I now use Jeppesen charts and find them an improvement over NOAA or DoD charts but there is still much room for improvement. If available, I would like a copy of the survey results - would you please provide cost data. Thanks.

Comment To Question No. GEN Survey Number: 0794

All publications of instrument approach procedures should be changed so as to:
1. Provide larger pages with larger print. 2. Color code or vary print size for different information, i.e., obstacles and MDA/DH in red, headings in brown, times for MAP in green, etc.

Comment To Question No. GEN Survey Number: 0795

Why so much emphasis on departures? How about profile descents. Some problems there.

Comment To Question No. GEN Survey Number: 0801

Chicago, Ill. Midway Airport: Canal Three Departure & Midway Three Departure (both state) aircraft departing runway 4L and 4R climb to 2400' on a 090 degree heading before turning north. (On the Canal you can't climb above 2000' until 4 DME from airport.) Controllers always give turn to northwest with T.O. clearance. What if you lose engine and/or communication after T.O.? Why give the departure in the clearance if you are going to vector anyway and in this situation, which has precedence?

Appendix I

Comment To Question No. GEN Survey Number: 0811

Have used Jepps. since 1973. Information presented seems intended to satisfy legal rather than operational requirements. Perhaps this is the time to take a clean paper approach centered on how we operate turbine aircraft into and from congested terminal environments.

Comment To Question No. GEN Survey Number: 0814

Like any other situation, if approaches are flown frequently enough the pilot becomes more proficient; however, for low time IFR pilots that fly instrument only enough to keep legally current, these approaches become very difficult.

Comment To Question No. GEN Survey Number: 0815

I really think that TCA charts should be super-imposed on all approach, departure, arrival, and area charts, this would not only help the larger airline and military aircraft, but would also help the smaller general aviation aircraft to determine exactly where the TCA is. This might reduce the "POP-UP" traffic in the TCA. A prime example of this is the AeroMexico disaster of a few weeks ago. Thought should also be considered in superimposing ARSA and MSA areas onto these charts if it can be done without clutter.

Comment To Question No. GEN Survey Number: 0815

The good example of TCA oblems is Las Vegas, NV. Many times the controller will clear airline traffic for a visual approach Runway 25 into McCarran. Unless the TCA chart is out for reference, it is very easy to unknowingly descend below the floor of the TCA doing a 250 knot descent.

Comment To Question No. GEN Survey Number: 0818

The company I presently work for uses the Jeppesen charts. I prefer the NOAA charts for clarity and their presentation, I feel they are easier to use. I also like the ease of revising them verses Jeppesen charts.

Comment To Question No. GEN Survey Number: 0826

The reason I don't use NOAA charts is the bulkiness when using them. Almost impossible to put in front of you. I fly single pilot, would like to use the complete replacement of NOAA Vs. the time consuming inserting of Jeppesens but can't use the NOAA charts safely.

Comment To Question No. GEN Survey Number: 0828

All dep. should, if possible, be runway heading runway vectors. That is what most end up with much of time. Alternative heading after T.O. with vectors to on course.

Appendix I

Comment To Question No. GEN Survey Number: 0829

Arrival and departure gates used by ATC should be published and made available to enhance flight planning.

Comment To Question No. GEN Survey Number: 0830

We prefer Jeppesen charts over NOAA (approach & enroute) for ease of looking up airports, quantity of information (more terrain/obstruction, airport info-runway alignment-slope). Dislike revisions. Use Jeppesen for Western U.S. (majority of our flights) & NOAA for rest of U.S. (simply for the ease of NOAA revisions).

Comment To Question No. GEN Survey Number: 0834

Please call me, I would like to work with you on this very important study. We need many changes. FAR 135 and other landing min. are hard to determine on some complex approach charts. Has anyone thought of putting this information in computer and print out charts on the office computer printer or aircraft printer. I have 8 pilots and 3 jets; we will be glad to help anytime.

Comment To Question No. GEN Survey Number: 0836

DoD plates have excessive information. All freq's and airport diagram on each plate; diagram is too small and has no lighting--should be on a single page and larger like Jeppesen. Supplement is a superfluous item, information should be first page of airport information, airport diagram on back. I should not have to research two manuals to get information on one airport and a third for STAR's & SID's. Again Jeppesen has a good format - STAR's, SID's, airport diagram (some) all approaches. Easy to complete STAR then do approach without much manual changing on bulky kneeboard while still trying to fly in the goo.

Comment To Question No. GEN Survey Number: 0836

DoD is ADEQUATE--a bare minimum; needs to be cleaned up streamlined, made workable for single pilot operation.

Comment To Question No. GEN Survey Number: 0837

Albuquerque center clears the aircraft for STAR but instead of saying for example "cleared Miena 1 Arrival" they say "cleared to ABQ 160 degrees radial at 35 DME fix; descend to 11,000', cross 35 DME fix at or below 15,000'." This is what the Miena 1 STAR procedure directs the pilot to do. So, the rapid-fire clearance by the controller could be limited to clearance for a particular STAR. (Note: Radial, DME, altitudes are examples only, not exact procedures.)

Comment To Question No. GEN Survey Number: 0840

Allow most changes only 4 times a year. Most Jeppesens revisions could wait. Keeping charts up dated takes too long and should not need to involve so much.

Appendix I

Comment To Question No. GEN

Survey Number: 0842

DoD approach plates are more difficult to understand than Jeppesen. DoD plates need to get rid of airport layout on every plate and generally become more standardized with Jeppesen.

Comment To Question No. GEN

Survey Number: 0846

Instrument approaches at airports with a number of approaches should be considered on an individual basis and not considered as a group. Each approach should be considered individually and all applicable frequencies should be printed on each plate.

Comment To Question No. GEN

Survey Number: 0851

1. More of the surrounding Nav. aids on the plan view. 2. MSA information should be shown as radials from the Nav. aid - VS - courses. 3. Possibly put STAR feeder routes on the plan view. 4. Possibly a better distinction between MDA/HD vis req. HAT/HAA, planning mins. in the category blocks on the approach plates.

Comment To Question No. GEN

Survey Number: 0852

In remote areas, Jeppesen is frequently the only or only accurate, charted approach. Although Jeppesen publishes TACAN DME channels on their enroute charts, TACAN channels are not shown on their approach plates. This means the military pilot must convert the VHF DME frequency to the paired TACAN channel, while shooting the approach. The confusion involved creates excessive pilot workload during a critical phase of flight.

Comment To Question No. GEN

Survey Number: 0857

The amount and type of information currently displayed on approach plates is good. I think there needs to be more study, however, into how the information can be better presented, i.e., standard symbology and phrases and layouts, removal of extraneous lines and arrows, etc. Find out what information is most important, most often used and then display it in such a manner that the pilot can glean out what's needed quickly. I'm sure that's been done in the past, but it needs another look from an information processing/perception stand point.

Comment To Question No. GEN

Survey Number: 0858

Working groups should be formed to simplify complex "letdown" plate procedures, missed approach instructions, etc., at airports that have high density aircraft traffic flow (e.g., LAX, Chicago ORD/MDW, etc.) Pilot workload to interpret and comply with multiple "Stair step" letdowns and approaches results in more "heads in the cockpit" time rather than clearing the area for light aircraft VFR traffic. (example: LAX runway 25 profile descent.) Any changes to consolidate, simplify, standardize and enlarge printed matter on Jeppesen charts will improve pilot efficiency and on VFR ... help him keep his head out of the cockpit to clear for unknown threats.

Appendix I

Comment To Question No. GEN Survey Number: 0859

Glide slopes should be checked to greater distances to ease pilot workload. For example, while flying the profile descent to Runway 25, Twenty Nine Palms p. 10-2E followed by the ILS to either the north or south complexes at LAX, there are entirely too many altitude restrictions requiring the pilots to devote all their energies to making the restrictions instead of maintaining visual out look for other aircraft (could this have influenced the Aeromexico crash?). If one could just maintain the glideslope more attention could be paid to outside.

Comment To Question No. GEN Survey Number: 0859

TCAs are on separate pages & when one is flying an approach w/that chart out & cleared visual another chart is required often requiring use of other nav. aids; for ex. - the Loc to runway 27 @ SAN p. 11-2; if flying that, once cleared the visual, must use chart for TCA p.10-1T which is based on the MZB VOR. Again this increases workload inside the cockpit when we should be concentrating outside the cockpit.

Comment To Question No. GEN Survey Number: 0863

There should be a way to simplify some of the MAP's or of depicting them. Some are so long and complicated as to defy memory and/or rapid comprehension.

Comment To Question No. GEN Survey Number: 0863

I would like for the expanded airport taxi charts (for large apts.) to include runway lengths.

Comment To Question No. GEN Survey Number: 0863

High altitude charts (i.e., NY, CA) are so cluttered in terminal areas as to be almost illegible.

Comment To Question No. GEN Survey Number: 0864

Government approach charts should be on separate sheets like the "Jeppesen". However, I feel that the DoD charts provide a much better format. I feel I can pick up a DoD approach plate and easily extract the information I need very quickly. They are uncluttered & easy to read. The Jeppesen are far to cluttered. I've used the Jepps. for about 7 years and I still hate them. I much prefer the DoD plates. Also I very much like how the DoD plates depict, by use of an arrow, the "angle" at which you approach the runway on non-precision approaches. I feel this really gives me an edge on orienting myself when I break out.

Appendix I

Comment To Question No. GEN Survey Number: 0867

All nav. aids for a given airfield should be displayed on all approaches to that field.

Comment To Question No. GEN Survey Number: 0867

Holding information, particularly, can cause excessive workload at times (especially holding pattern entry).

Comment To Question No. GEN Survey Number: 0870

Asterisk's that appear on approach charts can cause concern if not noticed during planning stages. Changes in minima for hours of darkness should be included with day time minima.

Comment To Question No. GEN Survey Number: 0870

DoD U.S. Jeppesen should be addressed in DoD flip. Most USAF pilots receive little training in Jeppesen prior to being forced to use them.

Comment To Question No. GEN Survey Number: 0875

Most of the questions on difficulty are not YES or NO answers. Most instrument procedures are simple and are easy to follow. Some are very complex and require a good deal of preparation.

Comment To Question No. GEN Survey Number: 0876

The Jeppesen chart revision procedure could be improved if they were done more like DoD.

Comment To Question No. GEN Survey Number: 0881

As a part time instrument pilot, I don't have any particular problems with chart interpretation or use of either Jeppesen or NOAA charts, I can even stumble thru lost commo. procedures without straying from the rules to bad. But when the weather is down and I have to select an alternate, that's when I want to pull my hair out. If I'm flying (FAR) Part 91, Part 135, or Part 121 the rules are all different, if in flying an airplane or helicopter, the rules are different, if I'm flying in the U.S. or Canada the rules are different, if I'm flying civil or military the rules are different. After deciding under which rule I'm flying, then the fun begins trying to interpret the rule. I just wish we could simplify the rules for alternate selection and use.

NO-A188 723

REPORT OF SAFETY SURVEY: HUMAN INTEGRATION OF APPROACH
CHARTS(U) MIDWEST SYSTEMS RESEARCH INC DAYTON OH
W J COX ET AL. MAY 87 DOT/FAR/PH-87/15 F33615-85-C-3623

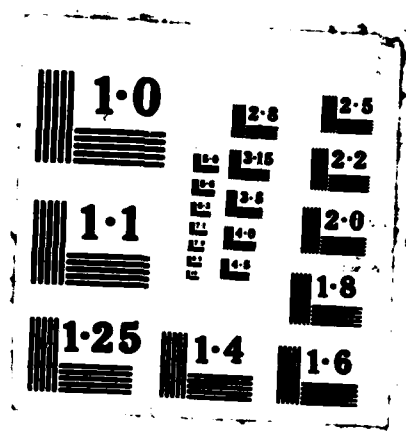
3/3

UNCLASSIFIED

F/G 1/2

NL





Appendix I

Comment To Question No. GEN Survey Number: 0886

Government publications do not provide approach information as Jeppesen charts, i.e., inoperative component table on approach, glide slope rate of descent table is in front of NOAA charts--on Jepp. charts information is on each chart.

Comment To Question No. GEN Survey Number: 0892

While the NOAA/DoD charts are less cluttered, the Jeppesen plates are better laid out and present more information than the former (NOAA/DoD).

Comment To Question No. GEN Survey Number: 0893

Maps/Charts: 1) They should be printed so when you get to the bottom you only need to flip it over to stay on your route (e.g., H3 to H4 to find the next Nav. aid (going N-S) you must flip & rotate the Map. 2) Put Long/Lat. coordinates in freq. blocks if there is sufficient room on all charts.

Comment To Question No. GEN Survey Number: 0902

All IFR flight plans should begin with radar vectors to the closest fix defining the desired route and should end at an IAF for the desired destination. That's how it should be filed and flown.

Comment To Question No. GEN Survey Number: 0931

Any abnormal NAVAID use (such as DME co-located with LOC transmitter, etc. should be noted in BOLD letters, i.e., LOC Co-Located WITH DME (CH XX).

Comment To Question No. GEN Survey Number: 0932

On Jeppesen chart they only have one chart with the runway diagram and only one with the clearance delivery frequency. We have to go back and find that particular chart when we need that information and are using a different plate.

Comment To Question No. GEN Survey Number: 0935

Frequent changing of approach & departure frequencies i.e., plate indicates 119.8, while ATC actually using 121.0 just for now!

Comment To Question No. GEN Survey Number: 0937

ASR minimums should be located on the approach charts instead of in front of the approach book. All approach minimums should be on the approach plate.

Appendix I

Comment To Question No. GEN Survey Number: 0961

Take off obstruction climb gradients are virtually non-existent & require detailed study of the approach plate. SID climb gradients seldom listed. MSA's are listed but vectoring altitude are not and therefore the pilot must take the controllers word and hope he is using correct figure, radio communications are not lost. Sometimes speeds & crossing altitude are not realistic compared to position when cleared.

Comment To Question No. GEN Survey Number: 0967

My main squawk is refusal of approach control to cancel out a VFR flight plan. This requires: 1) leaving their frequency momentarily. 2) Setting new radio frequency & 3 setting up A.C. frequency (all head down when head should be up). Ideally, tower or ground control should accept closure statement, but often they will refuse.

Comment To Question No. GEN Survey Number: 0971

I also feel the controllers should use the same approach plates the airlines use i.e., Jeppesen. This way we are both looking at the same information when discussing a problem.

Comment To Question No. GEN Survey Number: 0972

NOAA charts should have spiral binders or something other than a gummed binder won't lay flat, seem spring loaded and difficult to handle in cockpit.

Comment To Question No. GEN Survey Number: 0978

The DoD approach procedures are well designed and include the necessary information in a relatively clutter-free format. However, as with all things there are exceptions. Approach procedures into congested airfields are cluttered. Some missed approach procedures are tasking. In order to identify potentially problematic procedures, a case-by-case analysis is required vice a general re-vamping of the entire system. Some overall changes have been indicated above. The greatest problem I have encountered while both instructing (T-38A) and operationally flying (C-130) the procedures has been pilot & controller unfamiliarity with rules, procedures and notation.

Comment To Question No. GEN Survey Number: 0979

The Jeppesen charts (approach) are not standardize with regard to obstacle data. The Jeppesen approach plates should have only one ILS frequency per page. The Jeppesen enroute charts are too cluttered in some sectors.

Appendix I

Comment To Question No. GEN Survey Number: 0983

Center controlling local approach does not adhere to published procedures (attempting to control or expedite traffic flow) & assumes pilot can anticipate instructions. Coordinating centers force excessive rates of descent due to hand-off/flow conflicts (+ 2000'/min. descent). Pilot (single pilot operation) is forced into response more w/o time to prepare for approach in an orderly manner, i.e., approach plate review/aircraft check list review. Too many things happening at once.

Comment To Question No. GEN Survey Number: 0992

In an actual instrument environment, current procedures are acceptable, but as an air carrier pilot I often am distracted from attention to VFR collision avoidance due to complex arrival and departure routings and restrictions. TCA's are not simplified enough for quick identification of boundary and altitude limits without a separate navig. task during critical phases. As for government charts, they are a problem to locate and interpret as quickly and safely as Jepps. I have never liked or used NOS. charts unless req. due to circumstance beyond control.

Comment To Question No. GEN Survey Number: 0995

Approach charts should specify lead-in radials & VOR/ADF facility which are used, i.e., see CLE 11-1 Feb. 85 or 11-1A, 11-2 Sept. 86 shows VOR for lead-in radials. Lack of standization creates very high workload when critical attention should be devoted to arrival & traffic. Each chart has different volume of information. Same problem with many 10-1 area charts. Some VOR & Airways defined by airway information and others not. This makes this chart useless or worse if a change in routing experienced in early departure stage.

Comment To Question No. GEN Survey Number: 0997

DoD charts are not confusing since we receive so much training on them. Once they are memorized they are no longer confusing - which is not to say they couldn't be better. Also anything is confusing during a missed approach/go around if you have not already reviewed it.

Comment To Question No. GEN Survey Number: 1000

Chart packages should be more standardized. i.e., some places have Jeppesen approaches where as DoD does not have an acceptable approach to that same airfield.

Comment To Question No. GEN Survey Number: 1003

I have been using DoD charts for 10 years. Changes to them would probably cause more "confusion" to me just because I am used to working with them.

Appendix I

Comment To Question No. GEN Survey Number: 1004

From UPT there is a big conflict as to when feeder route is considered a part of the approach.

Comment To Question No. GEN Survey Number: 1024

1. DOD IAP's would be more useful if they contained information on approach lighting systems. In its current format, this data is difficult to obtain when needed.

Comment To Question No. GEN Survey Number: 1024

For helicopters, sector altitudes are useless. A much better method would be to provide a single minimum altitude to clear obstructions within 10 NM of an airport. Furthermore, only obstructions near the approach course need be shown.

Comment To Question No. GEN Survey Number: 1024

The primary missed approach point needs to be further emphasized on the profile view of the approach. It is quite easy to overlook.

Comment To Question No. GEN Survey Number: 1024

Published weather minimums need to be consolidated for quick reference.

Comment To Question No. GEN Survey Number: 1033

More information on what type approach and runway lighting one can expect to see would help reduce confusion.

Appendix J

ABBREVIATIONS

ADF - Automatic Direction Finder	MDA - Minimum Descent Altitude
AGL - Above Ground Level	MM - ILS Middle Marker
AIM - Airmen's Information Manual	MOCA - Minimum Obstruction Clearance Altitude
ALS - Approach Light System	MRA - Minimum Reception Altitude
ARSR - Air Route Surveillance Radar	MSA - Minimum Safe Altitude
ARTCC - Air Route Traffic Control Center	MSL - Mean Sea Level
ASR - Airport Surveillance Radar	MVA - Minimum Vectoring Altitude
ATC - Air Traffic Control	NDB - Nondirectional Radio Beacon
ATIS - Automatic Terminal Information Service	NoPT - No Procedure Turn Required
CLNC - Clearance	NOS - National Ocean Service
DH - Decision Height	NOTAM - Notice To Airmen
DME - Distance Measuring Equipment	OM - ILS Outer Marker
FAF - Final Approach Fix	PAR - Precision Approach Radar
FLIP - Flight Information Publication	QNE - Altimeter Setting 29.92 Inches Hg.
FSS - Flight Service Station	QNH - Altitude Above Sea Level Based On Station Pressure
GCA - Ground Controlled Approach	RBN - Radio Beacon
GS - Glide Slope	RCLM - Runway Centerline Marking
HAA - Height Above Airport	RCLS - Runway Centerline Light System
HAT - Height Above Touchdown	REIL - Runway End Identification Lights
HIRL - High Intensity Runway Lighting	RNAV - Area Navigation
IAF - Initial Approach Fix	RVR - Runway Visual Range
IAP - Instrument Approach Procedure	SALS - Short Approach Light System
ICAO - International Civil Aviation Organization	SID - Standard Instrument Departure
IFR - Instrument Flight Rules	STAR - Standard Terminal Arrival Route
ILS - Instrument Landing System	TACAN - UHF Tactical Air Navigational Aid
IMC - Instrument Meteorological Conditions	TCA - Terminal Control Area
INT - Intersection	TDZL - Touchdown Zone Lights
LDA - Localizer Type Directional Aid	TVOR - VHF Terminal Omnidirectional Station
LMM - Locator, Middle Marker	TWR - Tower
LOC - ILS Localizer	VFR - Visual Flight Rules
LOM - Locator, Outer Marker	VHF - Very High Frequency
MAA - Maximum Authorized Altitude	VOR - VHF Omnidirectional Station
MALS - Medium Intensity Approach Light System	VORTAC - Collocated VOR and TACAN
MCA - Minimum Crossing Altitude	

END

FILMED

MARCH, 19 88

DTIC